MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

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" 101, J. C. BILLUPS, 305 Henry St., Portsmouth, Va,
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H.. HALL, Box 512, New Berne, N. C
" 104. J. H BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

Manufacturers and dealers *who seek trade with and through the Navy Department are urged to send at once copies of their latest catalogues and price lists to Naval Constructor A. W. Stahl, U. S. N. Department of Construction and Repairs, Navy Yard, Norfolk, Va. All the records of this department were destroyed by fire on December 16.*

The Boston Belting Company, 256 Devonshire street, Boston, Mass., issues a series of desk blotters briefly describing packing, hose and other rubber specialties manufactured by this company.

"Electric Fire-proofed Wood" is the title to a 96-page book, very handsomely published, issued by the Electric Fire-proofing Company, 119 West Twenty-third street, New York city. It is a record of "Fire-proofed wood tests, warships, etc." Copies can undoubtedly be had by referring to MARINE ENGINEERING.

Users of pneumatic rotary drills, hammers for chipping and calking, reamers and pneumatic rammers for use in foundry work, will find much information regarding each or all of these subjects in a series of folders issued by the Philadelphia Pneumatic Tool Company, Stephen-Girard building, Philadelphia, Pa. Other applications of these tools, as referred to in the folders, are for flue rolling in boiler making, riveting, etc.

A new catalogue is at hand from the Olds Motor Works, Detroit, Mich., describing the Olds gas and gasolene engines, marine and stationary, also for motor carriages and trucks. A number of illustrations show the shops of the company, together with several pictures of engines of various types. The catalogue is more complete than the usual gas engine catalogue. The marine engine has a number of illustrations, showing different sizes and types, together with hulls of launches, etc.

"Boring and Turning Mills" and "Multiple Spindle Drills are the titles of two catalogues just from the press, and ready for distribution. by the Baush Machine Tool Company, Springfield, Mass. The catalogues are 6 by 9 in. in size, and in each one the left hand page contains a full page illustration of a machine, and the right hand page a description of it. As these are machines which are much used in shipbuilding and engineering work, undoubtedly many of our readers will want to send for copies.

The Case automatic high speed engine, so well known for direct connected electrical work, is fully described in a catalogue now ready for distribution by the F. M. Pierce Engineering Company, 26 Cortlandt street, New York City. The catalogue comprises 40 pages, and consists almost exclusively of illustrations of the engine, showing it direct connected to dynamos of nearly all kinds, as well as to blowers, centrifugal pumps, etc. There is also a complete description of the engine and of its working parts, with tables of sizes, etc.

Grinding machines manufactured by the Landis Tool Company, Waynesboro, Pa., are thoroughly illustrated and described in a handsomely published catalogue of over 100 pages, now ready for distribution. Grinding has become such an important feature of engineering work that any of our readers who have to do with the construction of engines, pumps and other such work will find this catalogue of much value. The several sizes and types of machines are illustrated with full-page pictures, and considerable descriptive matter accompanies each one. There is also much matter on the subject of the construction of these machines, as well as on the value of grinding. Altogether, the catalogue is exceptionally complete, and an excellent specimen of the printer's work.

A new metal for bearings, recently invented by Prof. Carpenter, of Cornell University, and called Lumen bronze, is now being manufactured for commercial uses by the Bierbaum & Merrick Metal Company, Buffalo, N. Y. This metal is thoroughly described in a 6-page folder, which is now being distributed. Information for the engineer or any user of bronze for brasses and bearings, is given.

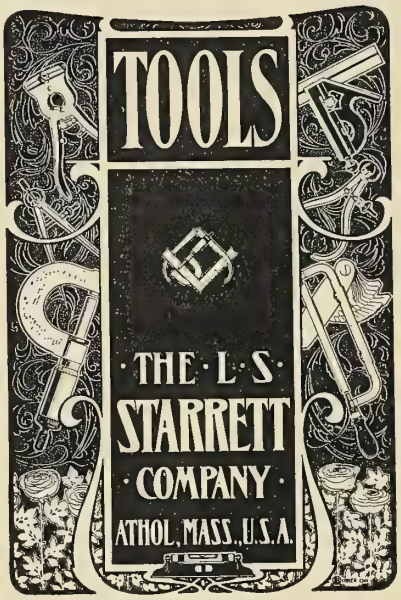
Westinghouse motor driven air compressors are described in a catalogue issued by the Westinghouse Air Brake Company, copies of which can be had upon application to the Westinghouse Companies' Publishing Department, Pittsburg, Pa.. A number of illustrations are given of compressors and the parts. The text is very complete, making the catalogue of much interest to users of compressed air.

Those of our readers interested in electrical subjects will find useful a series of bulletins just issued by the General Incandescent Arc Light Company, 572 First avenue, New York. Bulletin No. 50 describes knife switches. It has a number of illustrations with complete tables of sizes, capacity, etc. No. 82 is devoted to inclosed arc lamps. Several types are shown, and the descriptive matter is very complete. No. 83 describes arc lamps for alternating current.

Commutator segments have a special catalogue of over 150 pages devoted to them issued by the Billings & Spencer Company, Hartford, Conn. It includes a most complete list of drop forged, pure Lake copper commutator segments for every kind of electrical machine. The pages are devoted exclusively to illustrations of different sizes and shapes of segments, making the catalogue one of much value for reference for those who have to do with electrical apparatus.

The Brown & Sharpe Manufacturing Company, Providence, R. I., has issued a second edition of its catalogue of machinery and tools. The book is pocket size, and comprises over 450 closely printed pages. The first half is devoted to machine tools, and the remainder to small tools. Some idea of its completeness can be gathered when it is recalled that the index to contents comprises narly 12 pages. Any of our readers who have to do with machine tools or small tools of any kind will find a copy of this catalogue a most valuable one for reference.

The extent of the business of the Westinghouse Machine Company is briefly shown in a 20-page booklet entitled "A Bird's Eye View of our Business," now ready for distribution by the Westinghouse Companies' Publishing Department, Pittsburg, Pa. The booklet contains a number of illustrations of Westinghouse engines, both steam and gas. The list of special departments of the business includes, besides these engines, Westinghouse-Parsons steam turbines, mechanical stokers, complete plants, boiler, steam, electric and refrigerating, together with special work in mechanical draft, high class steam piping, etc.



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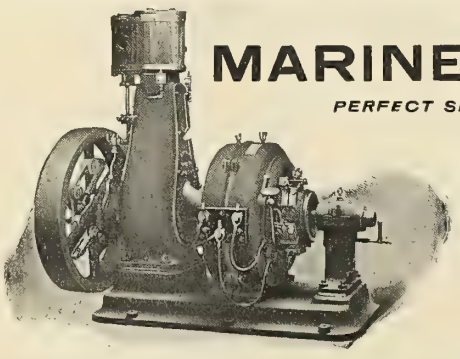
112 PAGES—ILLUSTRATED
FREE

"Tabor Steam Engine Indicators with Houghtaling Reducing Motion and Edson Pressure-recording Alarm Gauges" is the title of a catalogue just issued by the Ashcroft Manufacturing Company, 85 Liberty street, New York. The title tells the story of the catalogue, and it can only be said further that there are numerous illustrations, with a great deal of descriptive matter regarding the indicators and other specialties.

"Rock Drills and Drill Mountings," a catalogue issued recently by the Rand Drill Company, 128 Broadway, New York City, was in such demand that a second edition has now been issued, and is ready for distribution. The catalogue comprises 80 pages, and gives a great deal of valuable information, practical and historical, on the subject of drills. It includes not only ordinary drilling, but submarine work, care of apparatus, etc. The catalogue is very handsomely illustrated, and is so complete that any one who has to do in any way whatever with the use of drills will find it of much value.



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The seventy-second annual report of the American Seamen's Friend Society, with the annual sermon, is now being distributed by the American Seamen's Friend Society, 76 Wall street New York.

One of the handsomest catalogues of the season is that issued by the Daimler Manufacturing Company, Steinway, Long Island City, Long Island. It is 8 by 10 in. in size, comprises nearly 60 pages, is handsomely bound in illuminated maroon cover, and the text and many illustrations are also in colors. There are many pictures illustrating the subject of boat building in this company's plant, and much information regarding the machine shop in which the engines are manufactured. There is much information regarding the Daimler engines, hulls, and completed launches up to 40 feet or more, although this company builds launches more than twice this length. The pictures of the engines are very numerous, showing the large variety of sizes and types, from the smallest up to 50 H. P. It is one of the most complete catalogues of the kind we have ever seen.

S. Hemmenway & Son, 60 South street, New York, issue a 50-page catalogue giving much detail of their sailmaking business, also of their line of tents, flags, canvas covers, etc. The flags are printed in colors, and altogether the catalogue is one which many of our readers will find of much value.

Horizontal milling machines of the Becker-Brainard Milling Machine Company, Hyde Park, Mass., have a complete catalogue devoted to them in Catalogue No. 51. It is a compact yet comprehensive book, comprising 100 pages. There are nearly 50 illustrations. The index is so complete that the book is exceptionally useful for purposes of reference.

"Are Your Hands Tied to Uncongenial Work?" is the graphic title to a catalogue issued by the International Correspondence Schools, Box 1111, Scranton, Pa. The pages are devoted to portraits which accompany letters from a large number of students who have secured promotion by studying at this school.

A 12-page folder is issued by Ogden & Wallace, 577 Greenwich street, New York City, giving the stock list of various iron and steel specialities handled by this company. These specialties include many of importance in marine work, such as "Never-slip" wrought steel floor plates, smokestacks, sheets, tool steel, machinery steel, round and square steel, angles, tees, beams, channels, plates, etc.

"Seamless Tubing Made of Benedict Nickel" is the title to a complete and exceptionally well edited booklet now being distributed by the Benedict & Burnham Manufacturing Company, Waterbury, Conn. The booklet is devoted exclusively to a description of this metal and to seamless tubing as applied to many uses, not only for condenser tubes, but for exposed plumbing, for railings, and other uses where such metal is liable to suffer from corrosion.

The Sturtevant engine is thoroughly described in Catalogue No 103 now ready for distribution by the B. F. Sturtevant Company, Jamaica Plain, Mass. Each type of the engine is illustrated, and there is much descriptive matter regarding it. The illustrations are exceptionally fine, and the printing, like all of the Sturtevant work, is very high class.

"The Steam Loop and Holly Gravity Return System" is the title of a fine catalogue now ready for distribution by the Westinghouse Companies' Publishing Department, Pittsburg, Pa. The system is completely described, and many illustrations are given of large plants in which it has been introduced, and the operation of the system is explained in much detail by line drawings. This system has been introduced on a number of steamships, and these applications will be of special interest. In connection with the Holly system a number of pages are devoted to the subject of the Westinghouse engine, the Westinghouse-Parsons steam turbine, the Westinghouse gas engine, etc.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

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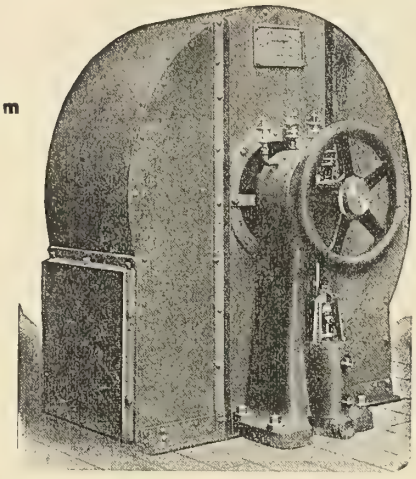

Buffalo Steel Plate Steam Fan For Forced Draft and Ship Ventilation.

BUFFALO FORGE COMPANY,

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NEW YORK OFFICE: 39 Cortlandt Street.

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Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

OTHER PAINTS

Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE: The New Jersey Zinc Co.

Our Practical Pamphlets, "Paints in Architecture," "The Paint Question."

71 Broadway NEW YORK

"The Dow Jump Spark Outfit" is the title to a catalogue now being distributed by the Dow Portable Electric Company, 218 Tremont street, Boston, Mass. Every user of a gas engine and others who have use for sparking devices will find it well worth while to peruse a copy of this catalogue.

Users of gas engines will find a complete description, accompanied by several illustrations of the "Hercules" gas engine, in the catalogue issued by the Delaware Machine Works, Wilmington, Del. Copies of the catalogue can undoubtedly be had upon application.

CALENDARS RECEIVED.

The Sultar Company, 106 Wall street, New York City.

C. P. Zacher & Company, 221 Fifth avenue, Chicago. It contains a fine engraving of a design in clay.

American Bicycle Company, Columbia Sales Department, Hartford, Conn. A desk calendar with a page for each day. This is sent upon receipt of five 2-cent stamps.

The Ashton Valve Company, 271 Franklin street, New York. A handsome lithograph of a small boy fishing from a boat on a river bank, entitled "Please Bite." Copies can be had. Price 10 cents.

From the Moran Towing Company, 10 South street, New York. In addition to the calendar, it gives reports of the tides at Sandy Hook, Governor's Island and Hell Gate Ferry throughout the year.

The Tietjen & Lang Dry Dock Company, Hoboken, N. J. At the top is a fine lithograph showing what a complete plant this company will have when improvements now under way are finished. It also gives tide reports, not only in New York Harbor, but for any place on the Atlantic coast from Maine to Florida.

BUSINESS NOTES.

LUNDELL MOTORS.—The Sprague Electric Company, 527 West Thirty-fourth street, New York City, has sold a large order of Lundell motors to the Delaware Button Company, Wilmington, for direct connection to button making machines.

PATTERN WORK.—Robert Smack & Company, 502 Water street, New York, have enlarged their plant and have opened a pattern department for furnishing all kinds of castings, such as grate bars, parts of furnaces, floor plates, cylinders, etc.

JOHNS ASBERTOS GOODS.—The H. W. Johns Manufacturing Company 100 William street, New York City, has a large order for work on the new Broad Exchange building, in New York, calling for between 50,000 and 60,000 feet of asbestos covering for pipes. A completely illustrated list of the asbestos coverings manufactured by this company is sent upon application to all who are interested.

BETHLEHEM FORGINGS.—The Bethlehem Steel Company, 100 Broadway, New York, has received order for the engine forgings for one of the ferryboats under construction at the yard of Harlan & Hollingsworth, Wilmington, Del. The company has also received order for six weldless field rings of nickel steel for the big electric plant now under construction for the Niagara Falls electric plant. These rings are among the largest pieces of work ever forged.

NEW STEEL PLANT.—The Seaboard Steel Company, Chester, Pa., lighted the fires in its furnaces last month to dry out the plant and to prepare for regular business. This company has constructed one of the most complete plants in the country, and is now taking orders for castings of all kinds. The plant is fitted with all the latest appliances, such as traveling and other cranes, and everything else that adds to the completeness of a plant for turning out steel castings of any size.

TEST AND OTHER GAUGES.—The Quimby Engineering Company, 915 Ridge avenue, Philadelphia, Pa., manufactures a specal line of mercury test gauges, vacuum gauges, etc. An 8 page folder is issued by the company, which describes these gauges, one of the most important ones being a gauge for measuring internal pressures. In this same folder considerable space is devoted to the exhaust nozzle which this company manufacturcs especially for steamboats. Copies of this folder can be had upon application.

AN IMPORTANT APPOINTMENT.—Mr. Asa M. Mattice has been appointed chief engineer of the Westinghouse Electric & Manufacturing Company. For ten years Mr. Mattice has been one of the best known enigneers of the country, having been in the office of E. D. Levitt, Cambridgeport, Mass., where some of the greatest engineering works of the last decade have been designed. Mr. Mattice is an engineer graduate of Annapolis in the class of 1874, of which class Mr. B. H. Warren, vice president of the Westinghouse Company, was also a member. Later, Mr. Mattice was assistant to Engineer in Chief Melville, U. S. N., up to the time he resigned from the Navy.

PURE COPPER CASTINGS.—The Process Copper & Brass Company, 42 Hudson street, Jersey City, N. J., is offering a line of castings in copper, brass and other metals which are of the highest conductivity and which are sold under a higher guarantee probably than any ever offered. This company states in its circular that it casts pure copper, solid and free from blow holes. This is accomplished by means of the process which this company uses, by which the copper is purified and rendered homogeneous. It is claimed that the castings have conductivity above 93 per cent of rolled copper. A circular which describes the products of this company is sent to all who are interested in this subject, and as it applies equally well to brass, bronze and composition, the subject is one of much interest to those connected with marine work.

OLYMPIA ASBESTO-METALLIC PACKING.—The packing which the C. W. Trainer Mfg. Co., 89 and 91 Pearl street, Boston, Mass., is introducing and now offering as desirable for marine work is called the asbesto-metallic packing. This packing was specially devised in consequence of the increase of the working pressure of steam. Flanges and joints, which were formerly made with rough surfaces, are now ground down smooth, requiring a much finer joint than was formerly the case; hence, the introduction of a fine brass wire spun into the warp and weft to give the jointing material greater tensile strength and enable a thin material to be used. Elasticity is imparted by a coating of india-rubber solution, which renders the fabric waterproof. A joint made of this material will stand the highest pressure for steam work. It is sold in the form of sheeting, or is made up into various forms of piston rod packing.

FIRE PROTECTION.—The danger of fire on wharves and in manufacturing establishments has led to the introduction of many devices for announcing the presence of fire. One of the systems which has met with more than usual success is the system of the Montauk Multiphase Cable Company, 100 Broadway, New York. This company issues a folder giving the names of a number of buildings, vessels, stores, etc., in which this system has been introduced. Another booklet, also issued by the company, gives quite a description of the system and the manner in which it is installed. The fire detector, in the form of a portable fire alarm system, also has a booklet describing it in detail. This system is of much importance, especially for such places as wharf buildings. One of the latest and largest orders secured by the company is to equip with fire alarm outfits the immense piers of the North German Lloyd Company, which are to be built on the site of the piers destroyed by fire last summer.

THERE IS BUT ONE

EUREKA Packing

And that bears this trade-mark.

PATD EUREKA TRADE MARK

which is a Guarantee of Perfection.

There are IMITATIONS, but only one DIAMOND, and that's "Eureka." It's the cheapest good packing made; a friend to the ENGINEER a profit to the user.

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INDICATORS, PLANIMETERS, REDUCING WHEELS, THREEWAY COCKS, &c

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Apparatus

Simple in Construction
Economic in Operation
Universal in Adoption

Westinghouse Electric
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PITTSBURG, PA.

All principal cities in United States and Canada

THE NAME WESTINGHOUSE IS A GUARANTEE — WESTINGHOUSE ELECTRIC

61 A

REMOVAL.—E. F. Houghton & Company, Philadelphia, Pa., dealers in steam traps, oils, greases and other specialties for engineers, have found it necessary to remove to larger quarters, and are now located at Third, American and Somerset streets.

STILL ANOTHER ADDITION.—Although the Bullock Electric Manufacturing Company has only recently moved into a new plant in Cincinnati, O., it was found necessary some months ago to build a large extension to the brass foundry and to the boxing and brass polishing departments. This extension is now about completed, and is already fully occupied, as the company has received many large orders lately and has every indication of doing an even larger business in 1901 than was done in 1900. Those interested in the subject can secure Bulletin No. 37 from the Bullock Electric Manufacturing Company, St. Paul building, New York City, which shows numerous views of the new plant, together with many pictures of electrical apparatus which the company manufactures.

A LARGE CHAIN.—The Chillcott-Evans Chain Company, Allegheny, Pa., have just completed one of the largest anchor chains ever made in this country. It is over 200 feet long and weighs over four tons. It is for use on one of the Atlantic steamships. The chain was entirely hand made, under the supervision of Mr. Arthur Chillcott of the company. Each link weighs 42 pounds, and is 12 1-2 in. long.

HEINTZ STEAM TRAPS.—Owing to the very great extension of its business, the William S. Haines Company has been obliged to seek much larger quarters, and has removed its offices from 136 South Fourth street to Eighteenth and Hamilton streets, Philadelphia. We are informed that this company has had a steady increase in its business until now it is putting on the market about 5,000 Heintz steam traps each month. Heretofore the offices have been in the lower part of the city, but the great volume of business has made it necessary to remove the offices to the works, and the company now has three times the office facilities that it formerly had.

"Benedict-Nickel"

Seamless Tubes, for Condensers

contain no zinc nor any weakening metal:

They resist all electrolysis and corrosion:

The tubes are formed by a hot-rolling process which by a single operation transforms a solid cylindrical billet of the heated metal into a seamless tube, perfectly homogeneous and absolutely flawless:

The tubes are then cold drawn to give them a smooth finish inside and outside.

The "NEWARK" was the first of the U. S. Navy to use "Benedict-Nickel" tubing for condenser purposes. Tubes of **"BENEDICT-NICKEL"** which were taken from the condenser of the American Line Steamer "St. Paul" after 28 months' service were in perfect condition.

A treatise on "Electrolysis of Condenser Tubes" mailed upon request.

We are also manufacturers, in a large way, of TOBIN BRONZE, Rod and Sheet; COPPER Sheets and Bolts; Seamless COPPER and BRASS Tubing for Condensers and other Marine Work.

BENEDICT & BURNHAM MFG. CO.,

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Depots: NEW YORK, 253 Broadway BOSTON, 172 High Street CHICAGO, Cor. Lake & Clark Sts.

V. WARING N.Y.

OLDS MOTORS.—The Olds Motor Works, Detroit, Mich., report a very considerable demand for gas engines and launches for use in the South.

REVOLUTION COUNTERS.—The importance of a revolution counter for almost any purpose will be appreciated by every practical man. One of the newest counters on the market is a very compact one offered by the Veeder Manufacturing Company, Hartford, Conn., and which is sold at the small price of $1.00.

GARDNER GRINDERS.—Charles H. Besly & Company, 10 North Canal street, Chicago, report many sales of Gardner grinders for finishing flat surfaces. This grinder was illustrated some months ago in these columns. Many of them are being introduced for finishing brass parts. A very complete catalogue of 300 pages, describing these grinders, and many other specialties of the Besly Company, is sent free.

MARINE CLOCKS.—The Chelsea Clock Company, 16 State street, Boston, Mass., is offering a line of specially built marine clocks which are all of high grade. These are made in several styles, most of them striking the ship bells. This company also offers a non-magnetic clock, which is especially useful in an engine room where there is much electrical machinery.

TOWING MACHINES.—The American Shipbuilding Company, Cleveland, O., which is building a number of steamships and barges for the ore carrying trade, has placed an order with the American Ship Windlass Company, Providence, R. I., for two towing machines. This order was placed, as the manager of the company says, "because we consider this machine the best thing on the market for this work."

A NEW SHIP YARD.—The Holmes Shipbuilding Company, Mystic, Conn., has been incorporated under the laws of the State of New Jersey, with a capital of $50,000. W. K. Holmes, Jr., with offices in the Empire Building, 71 Broadway, New York city, is president, and C. D. Holmes, Mystic, Conn., is general manager. The company has just closed a contract to build a five masted schooner for Connecticut parties.

MORSE TWIST DRILLS.—Every machinist and every engineer has use for drills and other tools and should have a copy of the catalogue issued by the Morse Twist Drill & Machine Company, New Bedford, Mass., which illustrates and describes the very complete line of tools manufactured by this Company. These drills and other tools are too well known for any mention. It is sufficient to say that naval specifications generally stipulate these drills.

AMERICAN COLD JAPAN.—A product which is meeting with much favor for use on board steel ships, as well as along the coast, where metallic surfaces are exposed to salt atmosphere, is American cold japan, sold by Stuart & McCurdy, Drexel building, Philadelphia, Pa. This japan can be easily applied, and it is claimed to be climate proof, acid proof and water proof. As to economy and durability, there is said to be nothing better. A number of testimonials have been received, speaking in the highest terms of the durability of this composition.

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HEINTZ STEAM SAVER

Has unique points that adapt it for

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It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking. . . . . .

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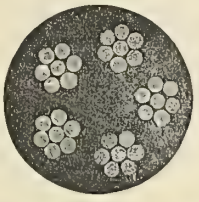
Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



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Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

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BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
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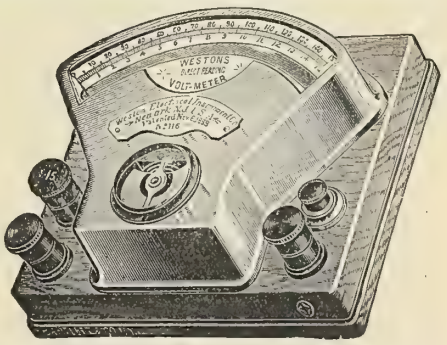

WESTON Standard Portable Direct Reading Voltmeter.

"Write White."—The Elliott Electric Blue Print Company, 723 Liberty avenue, Pittsburg, Pa., is putting on the market with much success a specialty which draughtsmen will greatly appreciate, known as "Write White." It is a fluid which can be used with any pen.

Forgings.—A complete line of rough machined and finished forgings, of open hearth steel or nickel steel, is the special business of the Duquesne Forge Company, Rankin, Pa. These include shafts of all kinds, quadruple throw crank shafts, connecting rods and all kinds of marine forgings.

Systematizing Business.—Ray D. Lillibridge, who makes a specialty of systematizing business, has opened larger offices at 20 Broad street, New York. Mr. Lillibridge already has several important clients, such as the American Bridge Company, the Electric Storage Battery Company, the Link Belt Engineering Company and others.

Falls Hollow Staybolts.—We are informed that the Falls Hollow Staybolt Company, Cuyahoga Falls, O., is receiving many flattering testimonials from marine boiler builders upon the high quality of its staybolt iron. The most satisfactory feature of these testimonials is that they are backed by large orders.

Graphite in a Squirt Can.—The pure flake graphite manufactured by the Dixon Crucible Company, Jersey City, N. J., can be used in a squirt can for lubricating purposes. This is a point which users of fine lubricants will appreciate. It is desirable whenever possible to use a new can, as oil is liable to clog up in an old can.

Correspondence Instruction.—The American School of Correspondence, Boston, Mass., is sending out a special coin card to engineers and others who desire to examine the instruction papers used in this school. Any one interested in the subject of education by correspondence upon writing to the school, will be given opportunity to examine the papers.

The Buffalo Forge Company.—The Buffalo Forge Company, Buffalo, N. Y., has been overwhelmed with orders since the election. Orders have been received to ventilate a number of large manufacturing establishments and other large buildings, also to heat many large buildings. A large equipment of down draft forges has also been installed for the Buffalo, Rochester & Pittsburg Railroad.

A Fine Electric Plant.—The Northern Electrical Manufacturing Company, Madison, Wis., has been awarded the contract for a complete electric lighting plant for the city of Detroit, Mich. There was strong competition for this order, but an investigation of the apparatus of the Northern Company was so satisfactory that this apparatus was selected. When completed, this will be one of the most modern and complete municipal plants of the country.

Air Compressors.—All of the air compressors and drills which were exhibited at the Paris Exposition by the Rand Drill Company, 128 Broadway, New York city, were sold to visitors at the exhibition. One of the large compressors was sold to the Messrs. Niclausse, manufacturers of the well known water tube boiler of the same name. It is to be used for operating pneumatic tools. This compressor supplied the compressed air for the American exhibits.

Metallic Gaskets.—The Merwarth metallic gaskets are meeting with much success, due largely to the fact probably that these gaskets are manufactured by a company which devotes itself exclusively to this one product. The claims made for these gaskets are that they are sold direct, and that everything possible is done to make the gaskets as serviceable and as long lived as possible. Full information regarding the gaskets can be had upon application to the Merwarth Metallic Gasket Company, 107 Liberty street, New York.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

ENGINE DRAUGHTSMEN WANTED.

Draughtsmen wanted on marine engines. Give experience, qualifications and references, with salary expected. Petersburg Iron Works Co., Petersburg, Va.

SECOND HAND LAUNCH WANTED.

A good staunch cabin launch, 35 to 40 feet long (alco-vapor engine preferred), is wanted. Give full particulars and price. Yachtsman, care Marine Engineering.

Electricity for Engineers---

Hawkins' Catechism of Electricity, a complete practical book on electrical engineering, easily understood. Sent postpaid to any address upon receipt of $2; money refunded if not satisfactory.

THEO. AUDEL & CO.,

63 FIFTH AVENUE - - - NEW YORK.

An Efficient Propeller.—Mr. H. G. Trout, of the King Iron Works, Buffalo, N. Y., recently furnished a propeller wheel to the United States survey steamer *Endeavor*, and we are informed that the speed of the boat is over half a knot more since this wheel was put on. Mr. Trout furnishes many wheels to steam vessels along the Atlantic coast, as well as on the Great Lakes.

The Lunkenheimer Co.—The Lunkenheimer Company celebrated the opening of its new branch factory last month by a reception and dance, which was attended by about one thousand guests. It was a most enjoyable affair, and a complete success in every way. This new factory, 90 ft. by 175 ft., 2 1-2 stories high, was built for the purpose of receiving the departments making iron valves of all kinds, injectors and safety valves. The steam boiler to supply heat, power and light to this building is to carry 400 lb. pressure, and has been tested to 700 lb. This unusual boiler is intended for practically testing injectors, safety valves, etc. The Lunkenheimer business, founded by Frederick Lukenheimer in 1861, was located on East Seventh street, between Main and Sycamore, Cincinnati, O. It was started in a small way, but soon began to grow, until in 1867 larger quarters were occupied on Lodge street. In 1881 a new factory was built on Eighth street, between Main and Sycamore. The business was incorporated in March, 1889. The officers are: E. H. Lunken, president; D. T. Williams, vice-president; C. F. Lunkenheimer, treasurer; S. L. Moyer, secretary; Wm. Muench, auditor. The superintendent of the manufacturing department is Henry Ritter. For several years the business has increased so rapidly that the old quarters were outgrown, and the branch factory was begun last spring. It is the intention to add two more buildings of about the same capacity each, as the present one, as well as a large foundry, 100 by 100 ft., in the early spring. The company manufactures high grade brass and iron work and fittings for engines and boilers of every description, consisting principally of the celebrated Lunkenheimer valves, injectors, lubricators, oil cups, whistles, safety valves, etc. They also manufacture a great variety of special work used in connection with steam, water and compressed air apparatus. Goods are shipped to all parts of this country, and also used extensively in foreign countries, especially England, Germany, Russia and Australia. The exhibit at the Paris Exposition was one of the leading ones in this line, and three silver medals were received, the highest in their respective classes. The managers of this company are all young men, less than forty years of age, and the entire business is thoroughly organized and systematized in departments.

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" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 418 S. Patterson Park Ave., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
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" 15, U. J. LEWIS, Eliza St. near Oliver St., New Orleans, La.
" 17, JOHN H. HOWE, 316 Vine St., Cincinnati, Ohio.
" 18, SAMUEL SHOEMAKER, 9th St. bet. Washington and Commercial, Cairo, Ill.
" 23, W. R. LEWIS, 213 East Front St., Jeffersonville, Ind.
" 24, JOS. M. ST. JOHN, 223 South First St., Paducah, Ky.
" 26, JOHN LAWRENT, 304 Third Ave., Evansville, Ind.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 StarrBoyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Cestnut St., Erie, Pa.
" 40, S. P. MALLIA, 1028 Market St., Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich.
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, CARL V. HART, 425 Perry St., Sandusky, Ohio.
" 51, HENRY CONNELL, 28 Juba St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER, Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Kingston, N. Y.
" 58, E. CAPERS HASELDEN, P. O. Box 31, Georgetown, S. C.
" 59, FRANK TERRY, P. O. Box 96, East Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. MCCARREL, 8 Vernon St., Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOEF, Grand Haven, Mich.
" 77, JOSEPH A. WEBER, 425 North 8th St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W. Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 15 S. Royal St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 737 Menekannee Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, MILES W. GAFFNEY, 309 Stark St. Saginaw, W. S., Mich.
" 93, W. J. COOK, 2324 G St., N. W., Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, THOS. J. HANLON, 14 Ave A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

Annual Meeting of the M. E. B. A.

The annual meeting of the Marine Engineers' Beneficial Association was held in Cleveland, Ohio, this year. The meeting opened on Monday, January 21, and continued throughout the week. The forenoon and part of the afternoon of each day was devoted to business and the remainder of the time to receptions, theatre parties, visits to the leading manufacturing concerns, ship yards, etc. Entertainment was provided by the members of Association No. 2, of Cleveland. The attendance was considerably larger than usual. A feature of this meeting was the exhibition by supply men.

Jenkins Brothers, whose head offices are at 71 John street, New York, but who have branches in Philadelphia, Boston and Chicago, had an exhibit of the various Jenkins specialties. There were several kinds of packing, and a complete display of Jenkins extra heavy valves for high pressure, together with a line of the regular Jenkins Brothers valves and all kinds of Jenkins '96 sheet packing, Graber automatic gauges, Sellers injectors, Jenkins pump valves, etc. The exhibit was in charge of Messrs. Charles W. Martin and Charles H. Jackson.

The Shelby Steel Tube Co. had a large parlor which contained a very complete exhibit of everything in the line of tubes, flanges, coils, etc. The most interesting feature of this exhibit was the demonstration of the processes through which the steel billet goes to make a complete tube. There was a model locomotive which attracted much attention, as it was made entirely of tubing. The exhibit was in charge of Mr. James J. Lynn. Considerable literature regarding tubing for boilers and other purposes was distributed.

The Garlock Packing Co., Palmyra, N. Y., exhibited rolls of Garlock brown sheet packing, also a high pressure packing and other kinds, together with extra ring packing, Garlock gold bronze square flax packing, etc. This company distributed samples of packing. The exhibit was in charge of Mr. J. M. Chapman, manager of the Chicago and Cleveland branches, and he was assisted by Mr. C. W. Scott, Mr. S. R. Amidon and Mr. E. A. Smith.

The Crane Co., Chicago and New York, exhibited a line of high pressure globe and angle valves and gate valves in sizes from 1-4 in. to 3 in. in brass and 2 1-2 in. to 10 in. in iron, also a full line of regrinding valves from 1-4 to 3 in. A complete catalogue of the various Crane specialties was distributed, and copies will probably be sent to all inquirers. The exhibit was in charge of Mr. J. A. Minwegan, of the Chicago office.

Several pumps were exhibited by Henry R. Worthington and the George F. Blake Mfg. Co. The exhibit included several small pumps, among them being the new Blake simplex feather weight. There were also several models of pumps. The exhibit was in charge of Mr. William Morrison, who has an office at 11 South Water street, Cleveland.

The Peerless Rubber Mfg. Co., 16 Warren street, New York, exhibited many samples of the various specialties manufactured by the company, including Rainbow packing, piston valve rod packings, gaskets, etc. The exhibit occupied an entire parlor and was in charge of Mr. C. S. Prosser.

The Strong, Carlisle & Hammond Co., 61-67 Frankfort street, Cleveland, had an exhibit of the Squires automatic feed water controller, which is a recent invention and which attracted much attention from the engineers. The exhibit was in charge of Mr. Silas H. Hunter.

The Ashton Valve Co., 271 Franklin street, Boston, Mass., exhibited valves, gauges and other specialties, being represented by Mr. Columbus Dill. This exhibit occupied a conspicuous position in the main hall.

A full line of Atlas pipe wrenches showing all the sizes was exhibited by the Atlas Pipe Wrench Co., 121 Liberty street, New York. Mr. John E. O'Brien had charge of the exhibit.

W. M. Pattison Supply Co., Cleveland, Ohio, represents a number of leading concerns, and it exhibited many specialties. These included the following: Pipe cutting tools, stocks and dies of different sizes of the Hart Mfg. Co., of Cleveland, Ohio. The round piston and sheet packings and other rubber specialties of the Revere Rubber Co., Boston, Mass. Engine blow off and other valves, whistles, lubricators, injectors and other specialties of the Lunkenheimer Co., Cincinnati, Ohio. Amalgamated discs, rubber packings, and other specialties of the Libby Mfg. Co., 73 Watts St., New York. Pipe unions and other fittings of the E. M. Dart Mfg. Co., Providence, R. I. Injectors and other specialties of the Penberthy Injector Co., Detroit, Mich. The new blow off valve recently put on the market by the A. W. Cadman Mfg. Co., Pittsburg, Pa., as well as the Cadman alluminum babbit metal, etc. Other specialties exhibited were wrenches, hack saws and other engineers' supplies. Mr. Arthur Jones, secretary of the Pattison Co., had charge of the exhibit.

H. W. Johns Mfg. Co., New York, exhibited in connection with the W. M. Pattison Supply Co. This exhibit included Kearsarge asbestos covering. The Asbestocel sectional pipe covering attracted much attention. This company distributed a variety of catalogues. The exhibit was in charge of Mr. L. H. Taylor, who has an office in the Society for Savings Building, Cleveland, Ohio.

TRADE PUBLICATIONS.

Randolph Brandt, 38 Cortlandt street, New York, issues a neat pocket memorandum book containing a diary for the year, and incidently giving much information regarding Selden's patent packings and other supplies which Mr. Brandt sells. There are some interesting tables, postage regulations, and other valuable information.

Users of flue cleaners will be interested to send for a copy of the booklet issued by the Werner-Schenck Co., 189 Fifth avenue, Milwaukee, Wis., describing the Ruggles flue cleaner which this company manufactures. A number of illustrations are given, showing the construction and design of the cleaner, and there is considerable information which will be of interest. Many testimonials are given from engineers and others who have used the cleaners.

Walter Coleman & Sons, Providence, R. I., are now distributing their 1901 catalogue. It comprises 80 pages, with a complete index, and contains a great deal of information, together with a large variety of illustrations, regarding blocks of all kinds and sizes and for every conceivable use. All kinds of devices which are used in connection with blocks are also illustrated and described. Every yacht and shipbuilder, as well as everybody who has to do with yachts, will find a copy of this catalogue of much value.

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NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
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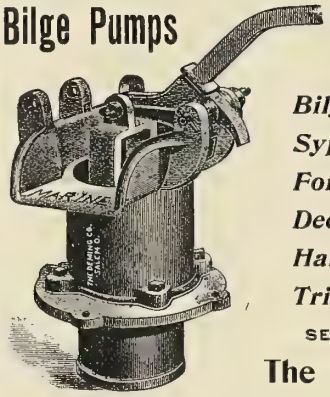
Bilge Pumps



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Force Pumps,
Deck and other
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Triplex Pumps.

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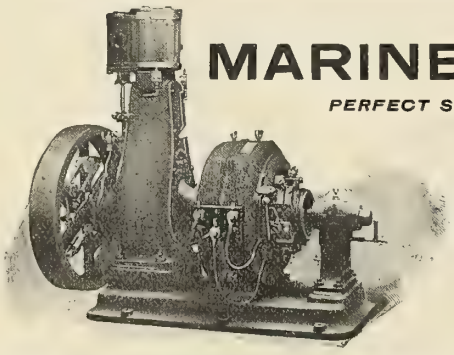

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YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?
NO CHARGE

Joseph Dixon Crucible Co.
JERSEY CITY, N. J.

The steam pumps manufactured by the Canton Pump Co., Canton, Ohio, are very well shown in a 50 page catalogue now ready for distribution. Each size of pump is well illustrated, most of the pictures being full page size. A brief description of the pumps is given, also tables covering all the information that would be required regarding steam consumption, etc. An index adds to the completeness of the catalogue, making it altogether one of value for reference.

The Potter Mesh Separator, which is used on several ships of the American Line, as well as other steamship lines, is fully described in an exceptionally well printed catalogue, which is now being distributed. The device itself is fully illustrated, and several drawings are given, showing the manner of applying it. A number of testimonials are also given, together with the names of the number of steamships on which it is used. This device is now handled by James Beggs & Co., 9 Dey street, New York.

How to Pack Your Engine and Piston Rods is the title to a handsomely printed and fully illustrated catalogue issued by A. W. France, 6512 State street, Philadelphia, Pa. This refers to the France metallic packing. The catalogue contains 24 pages, with a number of illustrations of packing of different kinds and a sectional view showing the application of it. The catalogue is one that will be of much interest to every engine builder and engineer.

Morison suspension furnaces for marine boilers have a most complete book, bound in stiff board cover, devoted to them, which has just been issued by the Continental Iron Works, Brooklyn, N. Y. This book is 9 by 11 in. in size, is handsomely printed in red and black, and contains a large number of illustrations showing the complete works of this company, different pictures of furnaces, drawings of their construction, and much other information regarding the manufacturing and handling of these furnaces. It is certainly a valuable publication for anyone interested in the subject of boilers and furnaces.

Centrifugal pumping machinery manufactured by the Morris Machine Works, Baldwinsville, N. Y., has an exceptionally complete and handsomely published catalogue devoted to it. This catalogue comprises 88 pages and cover, with a very complete index and telegraphic code. It is bound in a dark gray cover, printed in silver and red, and the text is printed on heavy coated paper. The illustrations are mostly full page size. Almost every size of the centrifugal pump is illustrated, from the big 36 in. dry dock pumping engines, with a capacity of 115,000 gallons per minute, to the smallest of pumps. There is a large line of circulating pumps shown, also a variety of dredging pumps. Altogether, the catalogue is one of much value. Several pages in the back part of the book are devoted to the marine engines of this company varying in horse power from about 3 to 300 I. H. P.

Burmeister & Wain, Copenhagen, Denmark, shipbuilders and engineers, have sent us a very handsomely published book describing their works. It is bound in heavy board cover, with red cloth, and the face is ornamented with red, gold and blue. The book contains 178 pages, 9 by 12 in. in size. In nearly every case the right hand page contains full page illustrations and the left hand page the accompanying reading matter. This matter covers the various specialties of the company, including yachts and vessels of all kinds, engines, boilers, gas engines, refrigerating plants, etc. At the opening is a picture covering two pages, showing the yard of this company as seen from the water front. The text is printed in English. The illustrations are exceptionally clear and comprehensive. A number of the vessels constructed in the early history of the company are shown, as well as many of the modern ones. It is one of the handsomest publications of the kind we have ever seen. The book contains a large number of marine engines of various types and sizes, together with many fine illustrations of boilers. The price of the book is not mentioned.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

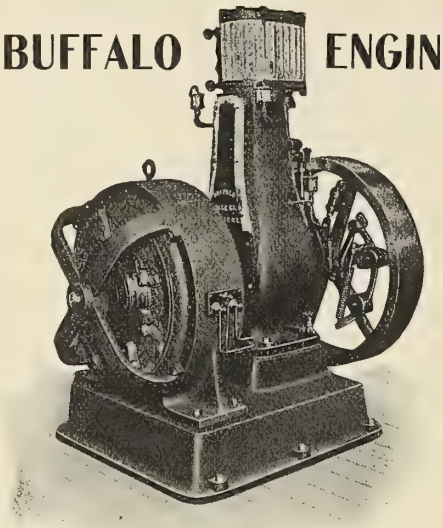
VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO ENGINES



Buffalo Single Vertical Engine
Direct Connected to Marine Type Generator

Buffalo Forge Company

Office and Works
BUFFALO, N. Y.

New York Office
39 CORTLANDT ST.

Palmer Bros., Mianus, Conn., are distributing a catalogue describing the gas engine which this company manufactures for both marine and stationary purposes, as well as for automobiles. This company also manufactures a full line of launches, which are illustrated and described, together with a full line of boat fittings.

Boston steel plate fans, manufactured by the Boston Blower Co., Hyde Park., Mass., are very fully described and exceptionally well illustrated in catalogue 51, now ready for distribution. This catalogue is 6 by 9 in. in size, and comprises over 50 pages, which contain a number of illustrations, both half tone and line engravings. A number of illustrations are given of the various forms of blowers.

"**Draft Without a Chimney**" is the title of an interesting little booklet of which the fourth edition has just been issued by the B. F. Sturtevant Co., Boston, Mass. This brings the total number of copies printed up to 50,000. It relates to the experience of the Sturtevant Co. in the use of a fan to produce draft without a chimney in its own works. Copies will be furnished on application.

The E. M. Dart Mfg. Co., Providence, R. I., is now distributing its 1901 catalogue of its various specialties. These include, among other things, malleable iron flange unions, plain or galvanized. These unions require no packing, and are guaranteed to make tight and durable joints, whether in or out of alignment. The catalogue will be of much interest to many of our readers, as there are other specialties also referred to.

"**The Separation of Grease** from Exhaust Steam" is the title to a booklet issued by William J. Baldwin, M.E., of the Baldwin Engineering Co., 107 West Seventeenth street, New York city. The booklet comprises 17 pages of text, and contains a sectional view of the Baldwin grease separator, together with other information. Copies of the book can probably be had upon application by all who are interested in the subject of grease separators.

The Following Figures

from the *Engineering and Mining Journal*, of January 5th, show the production of **Zinc White** and White Lead in the United States for the past two years:

	1899 Tons	1900 Tons		Tons
Zinc White,	**39,663**	**44,568**	**Increase,**	**4,905**
White Lead,	**103,466**	**90,853**	**Decrease,**	**12,613**

About 12% increase for zinc and a like decrease for lead. Made into paint ready for the brush, the figures for zinc represent about 178,272 tons, for lead about 165,187 tons.

The Deduction Is

that paint users are informing themselves regarding paint values. Good durable paint cannot be made without **Zinc White.**

The New Jersey Zinc Co.

FREE:
Our Practical Pamphlets
"The Paint Question"
"Paints in Architecture"
"House Paints: A Commonsense Talk About Them."

71 Broadway,

NEW YORK.

Users of paint for protecting stacks, boilers and other metal surfaces will be interested in the four page folder issued by the Joseph Dixon Crucible Co., Jersey City, N. J., describing the Dixon silica-graphite paint.

The Gray engine, manufactured by the Mianus Motor Works, Mianus, Conn., has a six page folder devoted to it. This is a gas engine, compact in form and ranging in size to 5 H. P. or more. Several testimonials are given in connection with the descriptive matter.

The two cycle gas and gasoline engines manufactured by the Rockland Machine Co., Rockland, Me., have a four page folder with illustrations devoted to them. The several types of engines are illustrated, and considerable descriptive matter, together with information regarding sizes, speeds, etc., is also given.

Moroccoline is the name of a cheap, durable covering described with considerable completeness in a book just issued by the Boston Artificial Leather Co., 12 East Eighteenth street, New York city. As moroccoline is specially adapted for covering cushions, furniture, etc., on board ships and yachts, the book will be of interest to many of our readers.

The Seamless Steel Tubes Co., which has just constructed a plant at Detroit, Mich., is distributing an eight page catalogue with cover, describing the new plant and announcing its facilities for supplying anything in the line of seamless tubes. There are some tables and other information regarding the subject of tubing which will be of interest.

"**Rubber Mats,** Matting and Treads for Steamships and Railways" is the title to a neatly printed, pocket size booklet just issued by the Boston Belting Co., 256 Devonshire street, Boston, Mass. It is printed in two colors and illustrates the mats, treads, etc., ornamented in different ways. Brief reference is also made to the other rubber goods manufactured by this company.

BUSINESS NOTES.

A STRONG COMBINATION.—It is announced from Chicago that the Q. & C. Co. and the Railroad Supply Co. will hereafter be known as the Railroad Supply Co. D. S. Weg will be chairman of the board and C. F. Quincy will be president of the company. The headquarters of the new company are in the Bedford building. The new combination will continue to carry on the business on the broad scale and business like manner in which the two separate companies have always been managed, and the same line of specialities will be carried as heretofore.

CLEVELAND PUNCH AND SHEAR WORKS.—The Cleveland Punch and Shear Works, Cleveland, O., has now completed a large shop, which is about as complete as a shop of this kind well can be. The machinery is all operated by electricity, and there are electric traveling cranes and all other facilities for carrying on work in the most economical manner and for handling work of any size. The company has received a large number of inquiries for its machines, and has supplied a number of shipyards. One of the recent orders is for a 50 in. rotary planer from the Carnegie Steel Co. The other machines sold are a 1 in. punch and 16 ft. radial drill to a large establishment in Canada. The Eastern Shipbuilding Co. has just ordered a large punch, and the Buffalo Dry Dock Co. a 12 ft. arm radial drill.

MILDEW AND WATER PROOFING.—The Neptune Mildew and Water Proofing Co., 34 Wilson street, Jersey City, N. J., is meeting with much success in its process for preventing mildew and for making water proof sails, awnings, etc., as shown by the folder now issued by the company. The importance of this subject to all who have had to do with shipping or yachting is very evident. The claims are made for the process that sails and other canvas products can be cleansed and mildew removed. It is also claimed that the process does not injure or discolor the canvas, but, on the contrary, it serves as a preservative. It is also claimed that a sail when cured by this process with not mildew until it is worn out. The company gives a number of most excellent references in all parts of the country, and has agents in Boston and New Orleans.

THE BUFFALO FORGE COMPANY.—The Buffalo Forge Co., Buffalo, N. Y., opened the new century by holding a meeting of its entire staff of traveling men and other officials. There were in attendance at this gathering, which lasted for several days, not only all of the traveling men of the United States and the agents and other representatives, but Mr. D. W. Roper, who has been traveling in England and throughout Europe in the interests of this company for some time past. There were formal and informal gatherings, at which the superintendents and other men connected with the works had an opportunity to become intimately acquainted with the representatives and to consider business matters from every point of view. The result was the mutual exchange of ideas which greatly benefited both the manufacturing and the sales department. One of the features of the gathering was a banquet, at which Mr. H. W. Kreinheder, who was instrumental in organizing the company, was toastmaster. At his right and left were Messrs. William F. Wendt and Henry W. Wendt, senior and junior members of the firm. It is interesting to know that this business started about a quarter of a century ago in an outside shop. A little later the shop and offices were located in a small two story building at the corner of Broadway and Mortimer streets. Building after building was added until now the company occupies the entire block bounded by Broadway, Mortimer, Chaplain and Tousey streets. The original frame buildings have been removed and large modern ones put up. The company only recently completed a large six story shop.

Just to show you

What others think of "EUREKA"

U. S. S. AMPHITRITE.

We have been using EUREKA for 18 months and think it best for Steam Rods, especially when the rod is not true.

E. J. CUTHERILL, Warrant Machinist.

There are imitations, but only one RED DIAMOND.

PAT'D EUREKA TRADE MARK

We make Indicators, Planimeters and make them well.

JAS. L. ROBERTSON & SONS, 218 Fulton St., N. Y.

WESTINGHOUSE ELECTRIC — THE NAME WESTINGHOUSE IS A GUARANTEE

Westinghouse

Electrical Apparatus

Simple in Construction
Economic in Operation
Universal in Application

Westinghouse Electric & Manufacturing Co.

PITTSBURG, PA.

All principal cities in United States and Canada

WESTINGHOUSE ELECTRIC — THE NAME WESTINGHOUSE IS A GUARANTEE

61 A

PATENTS.—Owing to the increase in their business, Davis & Davis, who have heretofore had an office only in Washington, D. C., 709 G street, N. W., have found it necessary to open an office in New York, in the St. Paul Building.

NICLAUSSE BOILERS.—It is announced that the two immense ships which are under construction at the yard of the Eastern Shipbuilding Co., New London, Conn., will each have Niclausse boilers, furnished by the Stirling Co., Pullman building, Chicago. It is said that there will be 16 boilers in each ship, having 40,000 sq. ft. of heating surface.

PACKING FOR CONDENSER TUBES.—Joseph Allen, 1 South Front street, Philadelphia, Pa., is offering something new in the line of packing for condenser tubes, which, according to a testimonial, has already been used with much success by the American Line, as well as by other lines. This packing takes the place of corset lacing, and is much easier of application. A circular is issued by Mr. Allen which gives full information regarding this packing, and shows the manner in which it is applied.

THE NOVELTY ERASER.—The Joseph Dixon Crucible Co. is putting on the market something new in the line of ink and pencil erasers. It is designed especially for use on drawing tables and on business desks. Its shape is such as adapts it for erasing fine lines. In order to introduce it, the company offers to send a sample to anyone in return for a postal card mentioning MARINE ENGINEERING.

PARAGON BOILERS.—We are informed by Capt. M. De Puy, patentee of the well known Paragon boiler, whose headquarters are at 19 South street, New York city, that he has met with much success with the boiler, as orders are coming in very freely. He informs us that the Marine and Stationary Engineers' Associations of Buffalo are recommending the boiler highly. He also states that the Willamette Iron and Steel Works, Portland, Ore., has built one of these boilers and that it is giving excellent results. Territory is now being assigned to manufacturers all over the country for the handling of these boilers and for manufacturing them. Circulars giving information regarding the boiler can be had upon application.

"Benedict-Nickel"

Seamless Tubes, for Condensers

contain no zinc nor any weakening metal:

They resist all electrolysis and corrosion:

The tubes are formed by a hot-rolling process which by a single operation transforms a solid cylindrical billet of the heated metal into a seamless tube, perfectly homogeneous and absolutely flawless:

The tubes are then cold drawn to give them a smooth finish inside and outside.

The "NEWARK" was the first of the U. S. Navy to use "Benedict-Nickel" tubing for condenser purposes. Tubes of **"BENEDICT-NICKEL"** which were taken from the condenser of the American Line Steamer "St. Paul" after 28 months' service were in perfect condition.

A treatise on "Electrolysis of Condenser Tubes" mailed upon request.

We are also manufacturers, in a large way, of TOBIN BRONZE, Rod and Sheet; COPPER Sheets and Bolts; Seamless COPPER and BRASS Tubing for Condensers and other Marine Work.

BENEDICT & BURNHAM MFG. CO.,

Mills and Main Offices, WATERBURY, CONN.

Depots: NEW YORK, 253 Broadway BOSTON, 172 High Street CHICAGO, Cor. Lake & Clark Sts.

V. WARING N.Y.

STEEL WHEELBARROWS.—The Frank E. Fitts Mfg. & Supply Co., 166 Oliver street, Boston, Mass., is distributing a price list of steel wheelbarrows, designed especially for handling coal. The price list contains illustrations of the wheelbarrow and information regarding the construction.

VIENNOT ADVERTISING AGENCY.—The Viennot Advertising Agency, whose Philadelphia offices are at 524 Walnut street, has opened larger offices in New York at 719 Temple court. Mr. Joseph H. Williamson, business manager of the agency, will have special days when he will be in the New York office.

BETHLEHEM STEEL CO.—The Bethlehem Steel Co., 100 Broadway, New York, has been annoyed of late by the use of its name by a concern which claims connection with the Bethlehem Co., in order to induce subscriptions to stock. The Bethlehem Co. announces that the new concern is in no way connected with it, nor does it indorse in any way the process for treating steel which the proposed company refers to in soliciting subscriptions.

UNSOLICITED TESTIMONIAL.—The B. F. Sturtevant Co., of Boston, Mass., recently received the following unsolicited letter from the Middicomb Furniture Co., Grand Rapids, Mich.: "Enclosed we hand you check for exhaust head, which was applied yesterday and found to be the most efficient device for the purpose the writer has even seen. The condition of the atmosphere this morning is one of extreme moisture, which certainly would display any spray passing out with the steam, but not a particle of moisture can be found in the air, and that even within 12 inches from the exhaust steam. As we have to purchase our water supply the device will soon pay for itself."

INCREASING BUSINESS.—The Philadelphia Pneumatic Tool Co., Stephen Girard building, Philadelphia, Pa., reports a large increase in business for the month of November over the preceding months. The pneumatic hammers are establishing for themselves a very enviable reputation, as evidenced by the duplicate orders received from some of the largest manufacturing concerns in the United States. Recent improvements in the long stroke riveting hammer have given very satisfactory results, and a large number of orders are booked ahead. The use of compressed air for foundry work has been largely increased by the sand rammers recently put upon the market by this company, not only as a labor saving device, but in doing better and more uniform work. A large number of these tools have been sold and have met with flattering success, as shown by the increasing number of orders being received. This company states that, owing to its inability to fill orders, it is making arrangements to further increase its capacity, and shall, in the near future, be able to fill all orders promptly. Mr. Robert T. Mickle, M. E., formerly with the Kensington Engine Works, Ltd., Philadelphia, Pa., has been elected vice-president of the company, to fill the vacancy caused by the resignation of Mr. Geo. W. Borton.

....THE....

HEINTZ STEAM SAVER

Has unique points that adapt it for

MARINE SERVICE

It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking. . . . . .

WILLIAM S. HAINES CO.

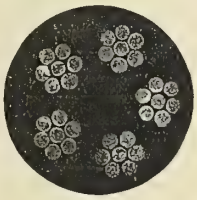
136 South 4th Street

PHILADELPHIA

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS

WESTON STANDARD PORTABLE DIRECT-READING

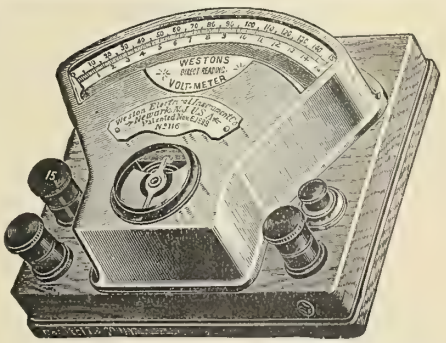
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

A Metal Sign.—Users of steam valves will have sent to them, upon request, by the Crane Company, Chicago, a metal sign, showing one of this company's valves. The signs are so made that they can be easily hung up.

Eye Bolts.—Users of eye bolts will be interested in a price list now being distributed by the Billings & Spencer Co., Hartford, Conn., giving illustrations of its eye bolts, together with price lists, tables of sizes, diameter capacity etc.

Westinghouse Offices Moved.—Messrs. M. R. Muckle, Jr., & Company, who represent Westinghouse, Church, Kerr & Company in Philadelphia, have changed their offices, and are now at 21 South Twelfth street, Philadelphia, Pa.

Standard Drills.—Users of drills will be interested in the line of drills manufactured by the Standard Tool Company, Cleveland, Ohio. This Company issues a private mailing card which illustrates quite a number of these drills and gives other information.

Yacht Contracting.—Theodore Lucas has opened an office at 97 Water street, New York, as naval architect and engineer. His purpose is to contract for the designing and constructing of yachts and other vessels. He is now distributing circulars regarding the various branches of his business.

Safety Water Columns.—The Pittsburg Gage & Supply Company, Pittsburg, Pa., announces such a great demand for its safety water columns that its manufacturing facilities have been rushed to the utmost. During the past month many large orders were received from leading manufacturing establishments throughout Ohio and in Western Pennsylvania. The simplicity of the columns has attracted attention to it and been of much value in selling it. It is said that over 1,500 columns have been installed in Ohio alone within a short period. The American Sheet Steel Company ordered nearly one hundred, the Lake Shore Railroad eighty, and many other large companies in proportion.

Launch and Automobile Plant.—The Milwaukee Automobile Co., Nineteenth and St. Paul streets, Milwaukee, Wis., is putting on the market a small compact steam plant which is especially adapted for launches and automobiles. An eight page folder has been distributed, which gives considerable information regarding the plant, together with a picture of both the engine and the boiler.

A Lubricator Filler.—The William Powell Co., Cincinnati, Ohio, is meeting with much success in introducing its lubricator filler. It is a simple device, designed to be attached to automatic lubricators so as to prevent waste of oil. A circular is issued by the company containing a large picture, showing the application of the filler and the manner in which it works.

Free Scholarships.—Ambitious men, who desire to obtain better positions and higher wages, should investigate the free scholarship offer made in another column by the American School of Correspondence, Boston, Mass. Situated in a large city which is a recognized educational and industrial center, this correspondence school has many natural advantages in teaching the theory of the trades and engineering professions. Without leaving home or losing time from work, the student pursues a thorough course of study under the direction of able instructors, who are always ready and willing to assist him. Instruction papers, prepared especially for teaching by mail, are furnished free. These papers are written in clear and concise language, as free as possible from technicalities. In addition, special information regarding any difficulties in their studies is furnished students without extra charge. It should be the ambition of every man to advance in his trade or profession. A mechanic with practical experience, supplemented by theoretical education, can command a better position than a man without such an education. The result of long experience in teaching by mail shows that no other method so fully meets the requirements of men who have but little time for study.

Standard Seamless Tube Co.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

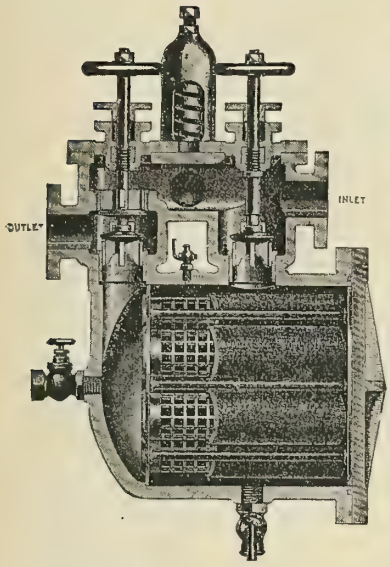
National Tube Company, Selling Agents

SALES OFFICES

Havemeyer Building, New York
95 Milk Street, Boston
Conestoga Building, Pittsburg
267 So. 4th Street, Philadelphia
Western Union Building, Chicago
420 California St., San Francisco

Foreign Office—Dock House, Billiter Street, London, E. C., England

Rankine's Patent
FEED WATER FILTERS



Are used on
S.S. St. Paul.
S.S. St. Louis.
S.Y. Corsair.
S.Y. Valiant.
S.S. Pennsylvania.
S.S. Westernland.
U.S.S. Albany.
U.S.S. New Orleans.
U.S.S. Gloucester.
H.M.S. Majestic.
H.M.S. Glory.
H.M.S. Mars.
Etc.

No Surface Condensing Plant Complete Without One.

In use in over fifty large electric plants.

FITTED BY
Babcock & Willcox Co. — Wm. Cramp & Sons, S. & E. B. Co.
W. & A. Fletcher Co. — Vulcan Co., Stettin, Germany.
Harland & Wolf, Belfast, Ireland — Laird Bros., England.
The Chicago Edison Co., etc.

W. BLACKBURN SMITH,

Office and Works, Perth Amboy, N. J. — Sole Manufacturer in U. S. A., Perth Amboy, N. J. — Long Distance Tel. No. 8.

"KNOWLEDGE IS POWER."

Hawkins' Educational Works on practical, steam and electrical engineering—sold on easy monthly terms of payment. Send for description of books and terms.

THEO. AUDEL & CO., 63 Fifth Ave., New York City.

CALENDARS RECEIVED.

From the Charleston Metallic Packing Company, Charleston, S. C., a calendar mounted on a large sheet containing a lithographed portrait of a young lady in evening dress, in life like colors.

From the Lunkenheimer Company, Cincinnati, O., a large calendar containing a sheet for each day. This calendar makes a most excellent one for office use, as the figures are about six inches high, and there is ample space for making memoranda.

From the Kingsford Foundry and Machine Works, Oswego, N. Y., a calendar which gives full information regarding the tides. Around the calendar are excellent engravings of the various types of marine boilers manufactured by this company. There is a separate page for each month.

From David Kahnweiler's Sons, 439 Pearl street, New York, a large calendar, containing at the top a stirring picture of a lifeboat starting out through the breakers to a disabled ship. On the back of this calendar are pictures of various Kahnweiler life saving specialties, including lifeboats, life rafts, life buoys.

From the Starr Brass Manufacturing Company a large calendar in strong, black type, designed especially for office use. There is a sheet for each month, and on each sheet are pictures of the whistles, clocks, gauges, valves, and other specialties manufactured by this company, whose offices are at 108 East Dedham street, Boston, Mass.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

MOTOR BOAT WANTED.

Wanted second-hand motor boat not over 16 feet in length. Must be a good sea boat and in good condition. Give particulars and state where it can be seen. Address x x x x, care MARINE ENGINEERING.

TO STEAM YACHT OWNERS.

An engineer, well up in all modern marine machinery, desires a position where gentlemanly behavior and high class ability will be at a premium. Address CHIEF ENGINEER, care MARINE ENGINEERING

DRAUGHTSMAN SEEKS POSITION.

Draughtsman wants position, with chance of promotion. Prefers position with ship building company. Will begin on small salary. ED L. BAILEY, 513 N. Blount St., Raleigh, N. C.

PUMP SALESMAN WANTED.

Any man who can sell pumps can find a good position by addressing STEAM PUMP, care MARINE ENGINEERING.

William Bishop's Sons, 205 South street, New York. This calendar is printed on paper of a grayish tone, and mounted at the top is an excellent reproduction of a child's picture, entitled "Sunshine."

From the Western Block Co., Lockport, N. Y., a calendar with a sheet for each month giving phases of the moon. At the top is an excellent picture showing the locks in the Erie Canal at Lockport.

From the Wilson & Silsby Company, Rowe's Wharf, Boston, Mass. At the top of the calendar is an excellent photograph of two schooner yachts under full sail. This calendar gives also the tides in New York and Boston harbors.

James C. Wignall & Son, Beach and Vienna streets, Philadelphia, Pa. At the top of the calendar is an excellent photograph of the type of racing cutter built by this firm for the war vessels *New York, Iowa, Alabama*, and others.

From the Ross Valve Co., Troy, N. Y., a desk calendar in a neat leather case, with a card for each month in the year. On this calendar there is a brief reference to the regulating valves, feed water filters, and the other specialties of this company.

From the Townsend & Downey Shipbuilding and Repair Co., a neat calendar showing the works of the company at Shooter's Island, in Newark Bay. Brief mention is made of the various works undertaken by the company, and the calendar also gives the tides, etc., for New York harbor.

From Thomas P. Benton & Son, La Crosse, Wis., a calendar on dark grayish brown heavy board, at the top of which is a lithographed picture, in colors, of cats, entitled "The Three Misses Gray." There is brief mention of the gas engines, launches, electrical apparatus, searchlights, etc., manufactured by this company.

From Charles Esté, Twentieth street and Glenwood avenue, Philadelphia. There is a sheet for each month, and holidays and Sundays are marked in red. There are also the various changes in the moon indicated. At the top of the calendar is a most excellent lithographed illustration of the numerous lumber yards of Mr. Esté.

A handsome calendar in gray and gold, with a separate sheet for each month, is issued by the Bethlehem Steel Co., 100 Broadway, N. Y. Each of the monthly sheets bears an engraving showing some portion of the processes of the company or its product, making the calendar a very attractive one for the office of any shipyard or engineering concern.

From the Chicago Pneumatic Tool Company, Monadnock block, Chicago, Ill. These are issued month by month. At the top is a large engraving containing pictures of a steamship, of a large viaduct, of a modern steel building, and at the top is an Oriental structure, the title to the picture being "Two Magicians," the Oriental fakir and the modern mechanical magician, the pneumatic tool.

"Peerless"

LARGEST MANUFACTURERS IN THE WORLD OF

FINE FLANGE, PISTON and VALVE ROD PACKINGS.

Rainbow Packing.

Thousands of Imitators. No Equal. Will Hold Highest Pressure.

Don't have to use wire and cloth to hold Rainbow. Can't blow it out.

The Color of Rainbow Packing is Red.

Three Rows of Diamonds extending throughout the entire length of each and every roll of Rainbow Packing.

Peerless Spiral Piston and Valve Rod Packing

It will hold 400 lbs. of steam. Will run twelve months in high speed engines.

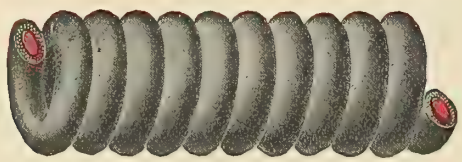
The Eclipse Sectional Rainbow Gasket.

3/8 in.
1/2 in.
5/8 in.
} for Hand Holes.

3/4 in.
7/8 in.
1 in.
} For Extra Large Joints.

Fac-Simile of a 6-inch Section of Eclipse Gasket.
Showing Name and Trade-Mark imbedded.

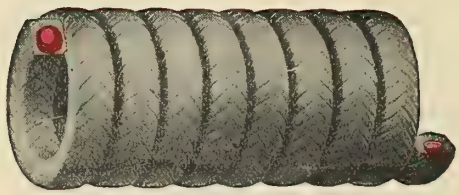
Hercules Combination



METALLIC STOP VALVE PACKING.

Keeps the stem absolutely clean. Always tight. Put up in boxes.

Honest John.



HYDRAULIC RAINBOW CORE PACKING.

For Water and Hydraulics. Made both straight and spiral.

MANUFACTURED, PATENTED AND COPYRIGHTED EXCLUSIVELY BY

THE PEERLESS RUBBER MANUFACTURING COMPANY,

16-24 Woodward Avenue, DETROIT, MICH. 202-210 S. Water Street, CHICAGO, ILL.
9-19 Beale Street, and 18-24 Main Street, SAN FRANCISCO, CAL.

16 WARREN STREET, NEW YORK.

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12 West 31st Street, New York.

President, CLEMENT A. GRISCOM.
Secretary-Treasurer, FRANCIS T. BOWLES.
Executive Committee, FRANCIS T. BOWLES, H. T. GAUSE, HARRINGTON PUTNAM, LEWIS NIXON, EDWIN A. STEVENS, CLEMENT A. GRISCOM.

AMERICAN SOCIETY OF NAVAL ENGINEERS.

Navy Department, Washington, D. C.

President,
Secretary-Treasurer, Lieutenant B. C. BRYAN, U. S. N.
Council, Commander H. WEBSTER, U. S. N., Lieutenant-Commander A. B. WILLITTS, U. S. N., Lieutenant-Commander F. H. BAILEY, U. S. N., Lieutenant R. S. GRIFFIN, U. S. N., Lieutenant B. C. BRYAN, U. S. N.

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Secretary, GEO. A. GRUBB, 1318 Wolfram St., Lake View, Chicago, Ill.
Treasurer, ALBERT L. JONES, 289 Champlain St., Detroit, Mich.
Advisory Board; JOSEPH BROOKS 6323 Dicks Ave., Philadelphia Pa., JOHN McG. STERRITT, 129 Broad St., New York, N. Y., WILLIAM SCHAFER, Baltimore, Md.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St, Buffalo, N. Y.
" 2, L. D. WEEKS, 6 Root St., Cleveland, O.
" 3, A. L. JONES, 289 Champlain St., Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 418 S. Patterson Park Ave., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
" 13, JOHN G. PAULDING, 1243 East Oxford St., Philadelphia, Pa.
" 15, U. J. LEWIS, Eliza St. near Oliver St., New Orleans, La.
" 17, JOHN H. HOWE, 316 Vine St., Cincinnati, Ohio
" 18, SAMUEL SHOEMAKER, 9th St. bet. Washington and Commercial, Cairo, Ill.
" 23, W. R. LEWIS, 213 East Front St., Jeffersonville, Ind.
" 24, JOS. M. ST. JOHN, 223 South First St., Paducah, Ky.
" 26, JOHN LAWRENT, 304 Third Ave., Evansville, Ind.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Cestnut St., Erie. Pa.
" 40, S. P. MALLIA, 1028 Market St., Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, CARL V. HART, 425 Perry St., Sandusky, Ohio.
" 51, HENRY CONNELL, 28 Juba St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER, Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Kingston, N. Y.
" 58, E. CAPERS HASELDEN, P. O. Box 31, Georgetown, S. C.
" 59, FRANK TERRY, P. O. Box 96, East Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. MCCARREL, 8 Vernon St., Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOEF, Grand Haven, Mich.
" 77, JOSEPH A. WEBER, 425 North 8th St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 15 S. Royal St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 737 Menekannee Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, MILES W. GAFFNEY, 309 Stark St. Saginaw, W. S., Mich.
" 93, W. J. COOK, 2324 G St., N. W., Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, THOS. J. HANLON, 14 Ave A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

Bullock Electric Mfg. Co., Cincinnati, Ohio, is distributing Bulletin No. 38, which illustrates and describes the Bullock electric locomotive and crane car. One of the illustrations shows the manner in which this car is of value especially in a manufacturing establishment.

The latest bulletin issued by the C. & C. Electric Co., 143 Liberty street, New York city, is No. 138, devoted to the series-parallel system of control for electric motors. It comprises nearly fifty pages and gives much information regarding the motors as applied to blowers, and much other information. Copies can be had upon application.

Asbestos papers, packings and mill board are described in a small catalogue now being distributed by the H. W. Johns Mfg. Co., 100 William street, New York. It gives quite a little information regarding this company's various asbestos specialties of all kinds and refers to many uses of them. Considerable attention is also given to the various packings and other specialties.

John Stuart & Co., Wollaston, Mass., now have ready for distribution an excellent catalogue of their launches, yachts and boats. The catalogue is devoted almost exclusively to line drawings of yachts and launches of various types and styles, showing deck and sail plans and giving much other valuable information. Any one who is interested in any way in small boats this catalogue would be of much interest.

Steamboat specialties, manufactured by the E. W. Vanduzen Co., 428 East Second street, Cincinnati, Ohio, have a complete catalogue devoted to them known as Catalogue A, which is now being distributed. The catalogue comprises twenty-four pages and includes a number of steamboat specialties, including gongs and bells of all kinds with the necessary fittings, fire and deck pumps, gaskets, fusible plugs, steam jet pumps, bilge pumps, etc.

The carpenters', coppersmiths', boiler makers' mallets and other tools manufactured by the New York Mallet & Handle Works, 452 East Houston street, New York city, have a neat catalogue devoted to them. The several specialties are illustrated and prices are given, together with different qualities and sizes. The list of specialties includes mallets and mauls of all kinds, ship and house carpenters' handles, hooks, hammers, etc. The catalogue is now ready for distribution to all who are interested in any of these specialties.

Four very neat and well printed catalogues are now being distributed by the Buffalo Forge Co., Buffalo, N. Y. They are on the following subjects: Mechanical Forced Draft, Mechanical Induced Draft, Down Draft Forges and Buffalo Steam Engines. Each catalogue is about 4 by 7 in. in size and comprises sixteen pages neatly printed in two colors. Each catalogue is thoroughly illustrated and each subject is handled concisely and in a manner to attract attention. Copies of any or all of these catalogues can undoubtedly be had upon application.

A list of the products of the American Steel & Wire Co., head office at The Rookery, Chicago, Ill., is now being distributed. This list includes many specialties, such as plates and sheets for ship hulls, boilers, tanks, stacks, etc.; also furnace plates; angles and beams, steel rods, round, square and otherwise shaped, such as would be used in engine building; spikes and nails for use in boat construction and for interior finishing and joiner work; wire rope for rigging, hawsers, cranes, etc. Full information regarding any or all of these specialties can be had upon application to the company.

A neat desk blotter comprising several blotter sheets on a celluloid card is sent to all inquirers by the Boston & Lockport Block Co., 142 Commercial street, Boston, Mass. On the celluloid is printed a picture of a block, also of a truck, and the addresses of the several offices of the company.

Catalogue No. 3, issued by the Standard Welding Co., Cleveland, Ohio, gives much information regarding the Seamless tubing manufactured by this company. The catalogue is handsomely printed in two colors. A number of illustrations are given showing the wide range of work of this company.

Users of small drills, portable forges, band saws and other tools will find much information regarding these and other specialties in the catalogue issued by the Silver Manufacturing Co., Salem, Ohio. Band saws are made in several sizes, as shown by the illustrations and descriptive matter. There are a half dozen or so different types of portable forges, and about a dozen different sizes and styles of drills for use in shops and on board ship. The catalogue is very fully illustrated.

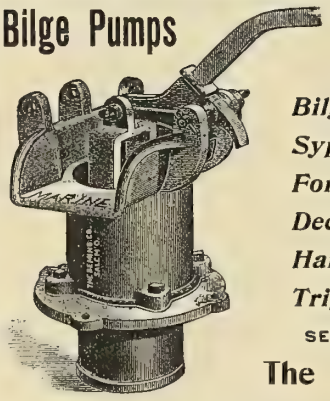
The Preservation of Wood, Steel and Galvanized Surfaces is the title to a booklet issued by the Goheen Manufacturing Co., Canton, Ohio, which is now in its fourth edition. It comprises twenty-four pages and gives much information on the subject of protecting surfaces. Considerable information is also given regarding the galvanized iron coating manufactured by this company. Among the testimonials are a number of letters from prominent steel and other concerns giving experiences with the use of this coating for protecting surfaces of all kinds.

M. W. Fogg, 20 Fulton street, New York city, issues a very effective catalogue, 10 by 12 in. in size, devoted to the subject of the interior furnishings for steamboats, yachts, etc. It is bound in light green cover and is printed in two colors. The text includes many photographs of the interiors of yachts and much information regarding the cushions, mattresses, pillows and other specialties of Mr. Fogg. The catalogue is one that should be in the hands of every yachtsman and every man who has to do with the equipment and furnishing of vessels and yachts of any kind.

The Clayton air compressors manufactured by the Clayton Air Compressor Co., 26 Cortlandt street, New York city, are very fully illustrated and described in a new catalogue now being distributed. The catalogue comprises about eighty pages of text and illustrations and contains many pictures of compressors of all sizes and much information regarding the subjects of capacity, horse power, etc. There is also much information regarding the general subject of compressed air. The catalogue is handsomely printed and will be of much interest to every one who cares to investigate the subject.

SEND FOR
NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

Bilge Pumps



We make a complete line of

Bilge Pumps,
Syphon Pumps,
Force Pumps,
Deck and other
Hand Pumps.
Triplex Pumps.

SEND FOR CATALOGUE.

The Deming Co.,
Salem, Ohio.

SHIP BUILDING PLANT FOR RENT.

The property has ample water front, and forty feet of water.

Plant already built and equipped with necessary machinery for building steel hulls, and with good machine and blacksmith shops.

Situated within 25 miles of New York City.

A rare opportunity. For particulars, address:

SHIPYARD,
Care Marine Engineering.

Something

YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J., U. S. A.

SALESROOMS AT

68 Reade Street, New York City.
1020 Arch Street, Philadelphia, Pa.
304 Market Street, San Francisco, Cal.
London Office: 26 Victoria Street, Westminster.

Graphite as a Lubricant is the title to a very comprehensive booklet of nearly fifty pages issued by the Joseph Dixon Crucible Co., Jersey City, N. J. Graphite as a lubricant is considered both scientifically and practically in this booklet, and attention is called to the desirableness of this lubricant for all kinds of lubrication. The popularity of this booklet is shown by the fact that this is the seventh edition.

Steam wagons for heavy duty, such as transporting heavy products from manufacturing establishments, are now being put on the market by the Thornycroft Steam Wagon Co., 97 Cedar street, New York city. These wagons are described in considerable detail in a circular now being distributed. Several types are illustrated and the text explains fully regarding them. The comparative cost is also given of a 3 1-2 ton steam wagon and a two horse dray, presenting the matter in the practical form that any manufacturer would wish it to be presented. Copies of this circular can be had upon application.

The Song of Steam.

The song of the ship of the bellying sail
Has oft been sung before;
How she stanchly rode the shrieking gale
'Mid the crashing breakers' roar.
The praise of the sturdy coach of mail
Has proved a stirring theme,
As it recklessly rushed o'er hill and dale
Drawn by its foam-flecked team.

But the energy locked in the diamond black
Since first the world began,
Has yielded its prison power back
To work the will of man;
And the liner swift ploughs the mighty main
Where erst the white wings flew,
And the steed of steel skims the pathless plain
Which the mail coach never knew.

The lathe, the drill, the press, the loom,
The winch, the walking beam,
The many power plants that bloom,
Attest the might of steam.
But the greatest good it has ever borne—
There isn't a doubt of that—
Is when in the cool November morn
It radiates through your flat.

M. W. POOL, in the New York *Sun*.

Boilers and Plate Metal Construction is the title to a pocket size booklet issued by the Coatesville Boiler Works, Coatesville, Pa. It gives a number of illustrations of tanks, boilers and other work of this company, together with a long list of users. Among other specialties is a type of standard vertical boiler.

Push-Button Switches is the title of Bulletin No. 54, now being distributed by the General Incandescent Arc Light Co., 572 First avenue, New York city. It is an eight page folder containing a number of illustrations and much matter describing in detail the construction of push buttons and their mechanism.

The plain horizontal milling machine No. 5B, manufactured by the Becker-Brainard Milling Machine Co., Hyde Park, Mass., has an excellently illustrated and well written circular, No. 52-1, devoted to it, which is now being distributed. The circular is 6 by 9 in. in size and contains two full page illustrations showing the machine in full detail.

Graphite Bearings.—The Graphite Lubricating Co., Bound Brook, N. J., has more than doubled the capacity of its plant owing to the great demand for its graphite bushings and bearings. Many of the specialties have been supplied to leading ship and engine builders and are now in general use. The point is especially emphasized that they run without oil or grease. Much information regarding these graphite specialties is given in a catalogue, a copy of which is forwarded to all inquirers.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

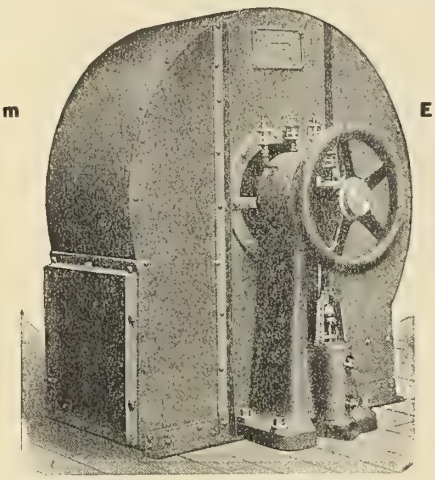
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO FORCED DRAFT FANS

Steam Electric



Buffalo Steel Plate Steam Fan For Forced Draft and Ship Ventilation.

BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

NEW YORK OFFICE
39 Cortlandt Street

Revised Figures

Show that the consumption of zinc white in the United States increased nearly 19 per cent. during last year, while the consumption of white lead was nearly 15 per cent. more in 1899 than in 1900.

This Means

More paint, handsomer paint, more durable paint, more economical paint —paint that is in every way more satisfactory to everybody concerned than straight lead and oil can possibly be.

The New Jersey Zinc Co.

FREE:
Our Practical Pamphlets, "The Paint Question," "Paints in Architecture," "House Paints: A Commonsense Talk About Them."

71 Broadway,

NEW YORK.

BUSINESS NOTES.

THE VINCENT GATE VALVE.—A new valve which is being offered for marine work is the Vincent, manufactured by Sweet & Doyle, Cohoes, N. Y. The special feature of this valve is that it has an adjustable wedge. A circular is issued by the company containing a large engraving showing the construction of the valve and emphasizing its special features.

PROSPEROUS YEAR.—The Boston & Lockport Block Co., 142 Commercial street, Boston, Mass., reports the past year as by far the most successful one in the history of the company, not only in the volume of business, but in the quantity of blocks and other specialties sold. The company has found its resources taxed to supply the great number of blocks called for.

NEW BULLOCK OFFICE.—The Bullock Electric Mfg. Co., Cincinnati, Ohio, has found it necessary to open an office in Buffalo, N. Y., in the Ellicott Square Building. This office will be in charge of Francis B. Smith, well known as an electrical engineer. The Bullock Co. has recently sold a large number of motors and generators, one order being for fourteen motors of various sizes, being a part of an order for forty motors for the new plant of the Fore River Engine Co.

COMPLETE PLANT.—The Cleveland Punch & Shear Works Co., Cleveland, Ohio, have just put into operation a large and complete plant which is thoroughly equipped with electrical equipment in all departments. This is believed to be one of the largest plants in the country for the production of shipbuilders' and other heavy tools. Among other recent orders received by the company was one from the Government for a heavy punch for the Mare Island Navy Yard.

BETHLEHEM STEEL COMPANY.—Mr. A. E. Borie has been appointed general sales agent of the Bethlehem Steel Company, with headquarters at South Bethlehem, Pa.

ASHTON VALVE CO.—Owing to the great extent of its Canadian trade, the Ashton Valve Co., whose head offices are at 271 Franklin street, Boston, Mass., has found it necessary to establish Canadian headquarters and an office has been opened at 22 St. John street, Montreal in charge of Mr. Sidney A. Stephens.

A FOLDING FORGE.—The folding forge which is being put on the market by the Buffalo Forge Co., Buffalo, N. Y., and which was illustrated and described in a recent issue of MARINE ENGINEERING, has met with ready sale. One of the latest orders was a rush order for a hundred for use in the army in the Philippines. When packed and in its case, one of these forges makes a package about 22 by 27 by 10 in. This forge is called the Buffalo Army and Navy Forge. It is used extensively in the Japanese navy as well as in others.

A FREE PREMIUM BOOK!—The Eagle Oil & Supply Co., 104 Broad street, Boston, Mass., issues in connection with its new catalogue a premium book of twenty useful articles for engineers. A copy of this book will be sent to any one on receipt of inquiry, and users of engineers' supplies will find this catalogue and premium book of much use for reference. This company launched out about seven years ago in the engineers' supply business and now occupies a complete building for its business. One specialty which has met with much favor is the Eagleine special ring packing. This packing and all other specialties of the company are fully described in catalogue No. 7.

BABBITT METAL.—J. Herbertsons' Sons, Cadwallader, Pa., are meeting with much success in introducing their babbitt metal which is designed especially for use on marine and hoisting engines. The manufacturers claim that this is the cheapest metal on the market.

A SAMPLE GASKET FREE.—Users of metallic gaskets will be interested to send for a sample of a patent metallic gasket manufactured by the Merwarth Metallic Gasket Co., 107 Liberty street, New York city. These gaskets are fully described in a catalogue, which is sent upon application. In this catalogue several pictures are given showing the manner of applying the gasket.

DURABLE WIRE ROPE.—The Durable Wire Rope Co., 288 Congress street, Boston, Mass., reports an increased demand for its Durable wire rope, especially for rigging and other uses on vessels. The fact that the rope is of such great strength, that it does not rust, and that it is as pliable as manila rope has done much to strengthen the demand for it. The superintendent of the French Line, in a recent letter, stated: "We have been using for a year your rope for coaling, unloading and loading our ships and find it a good deal better than any manila rope. Dampness does not make it swell and it is light and perfectly pliable. The first time we tried your rope we were so much pleased that we did not use manila rope any more after that."

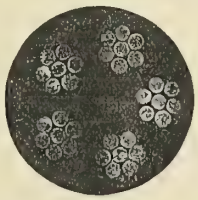
PNEUMATIC TOOLS.—The Philadelphia Pneumatic Tool Co., Stephen Girard Building, Philadelphia, Pa., has opened an office at No. 1 Wood street, Pittsburg, Pa., in order to supply the demand for its tools in the Pittsburg neighborhood. The company now has branch offices at 149 Broadway, New York, and in the Exchange Building, Boston, Mass. The company has recently purchased the stock and plant of the Keller Tool Co., which has heretofore been manufacturing tools especially for the Philadelphia Company. This consolidation greatly increases the strength of the company. At the same time the plant of the company has been largely expanded by the addition of many special tools. President Tierney is now in Europe making arrangements for foreign connections in order to give more direct attention to foreign orders.

PITTSBURGH ROTATING GAGE COCK.—The Pittsburgh Gage & Supply Co., Pittsburgh, Pa., manufactures a rotating gage cock that covers the field of the original syphon compression gage cock, and has other features which relieve the engineer of annoyance. The Pittsburgh rotating gage cock is operated by pulling down the lever to which a chain is attached of any length required, which enables the cock to be placed at any height or in any position difficult to reach. When the cock is opened, which is done automatically by pulling down the lever, the steam or water passing through the spiral causes the stem to revolve rapidly, cleansing the interior of the cock, preventing the formation of sediment, and when allowed to go back to its valve seat, which is done by releasing the lever, grinds it true and clean. This action is positive, as the steam or water cannot pass through the spiral without causing it to rotate. The spiral, being placed before the valve seat, is protected from the collection of sediment and from corrosion, always allowing the stem to rotate freely. Another feature is the claw lever, which holds the valve firmly to its seat without interfering with the opening of the cock or the rotation of the stem when the cock is in use. No regrinding is necessary, and there is no wearing out of the valve seat, no replacing of disks and no leaking. The Pittsburgh Gage & Supply Co. reports a constantly increasing demand for them from all sections, with over 75,000 cocks already in use, including some of the largest steam plants in the country.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire.
The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

WESTINGHOUSE ELECTRIC — THE NAME WESTINGHOUSE IS A GUARANTEE

Westinghouse

Electrical Apparatus

Simple in Construction
Economic in Operation
Universally Adopted

Westinghouse Electric & Manufacturing Co.

PITTSBURG, PA.

All principal cities in United States and Canada

WESTINGHOUSE ELECTRIC — THE NAME WESTINGHOUSE IS A GUARANTEE

61 C

THE CLIFTON GAS ENGINE.—The Clifton Motor Works, 229 East Clifton avenue, Cincinnati, Ohio, are offering a gas engine designed especially for small launches and made in sizes from one-quarter to one horse power. Full particulars of this engine can be had from the company.

IOWA IRON WORKS COMPANY.—Owing to the great increase in its business the Iowa Iron Works Company, Dubuque, Iowa, has found it necessary to incorporate into a stock company and this has been done with a capital stock of $50,000. The president of the company is Peter Kiene; the vice-president and superintendent, William Hopkins; the treasurer and manager, W. W. Bonson. The company is now employing between three and four hundred men and will give special attention to improving its facilities in every possible way for the manufacture of steamboats and other craft.

MEGAPHONES.—Merriman Bros., 162 Commercial street, Boston, Mass., make a special line of megaphones for use on vessels of all kinds. Full information with prices can be had upon inquiry.

COPPER PAINT.—The New Jersey Paint Works, Jersey City, N. J., is distributing a circular giving an excellent idea of the qualities of this company's copper paint. In the circular is a large picture of a board, one half of which was covered with copper paint and the other half of which was left in its natural condition. The board was then allowed to remain in the salt water at Port Royal, S. C., for five months. The part protected by the paint was not injured, but the other part was covered with barnacles and the wood in several places entirely eaten away. The value of this paint for protecting wooden surfaces is emphasized in other circulars which this company issues.

"Benedict-Nickel"

Seamless Tubes, for Condensers

contain no zinc nor any weakening metal:

They resist all electrolysis and corrosion:

The tubes are formed by a hot-rolling process which by a single operation transforms a solid cylindrical billet of the heated metal into a seamless tube, perfectly homogeneous and absolutely flawless:

The tubes are then cold drawn to give them a smooth finish inside and outside.

The "NEWARK" was the first of the U. S. Navy to use "Benedict-Nickel" tubing for condenser purposes. Tubes of **"BENEDICT-NICKEL"** which were taken from the condenser of the American Line Steamer "St. Paul" after 28 months' service were in perfect condition.

A treatise on "Electrolysis of Condenser Tubes" mailed upon request.

We are also manufacturers, in a large way, of TOBIN BRONZE, Rod and Sheet; COPPER Sheets and Bolts; Seamless COPPER and BRASS Tubing for Condensers and other Marine Work.

BENEDICT & BURNHAM MFG. CO.,

Mills and Main Offices, **WATERBURY, CONN.**

Depots: NEW YORK, 253 Broadway BOSTON, 172 High Street CHICAGO, Cor. Lake & Clark Sts.

V. WARING N.Y.

BLOW OFF VALVES.—The Pittsburgh Gage & Supply Co., 309 Water street, Pittsburgh, Pa., is offering something special in the line of blow off valves. These valves are fitted with metallic discs, which when worn out can be easily removed and replaced at slight expense.

INCREASED FACILITIES.—The Electro-Dynamic Co., 224 Ionic street, Philadelphia, Pa., which moved to its new plant only about two years ago, has already found itself cramped for facilities, owing to the great expansion of its business, and has taken an adjoining building. This is now equipped and with the enlarged plant the company is able to make prompt deliveries of anything in its line. Much new and imported machinery has been added.

A NOISE QUIETING NOZZLE.—The Quimby Engineering Co., 915 Ridge avenue, Philadelphia, Pa., finds much demand for its noise quieting nozzle for steamboats. A special circular describing the construction of this nozzle and giving much information regarding it is issued by the company. It is believed it arrests fully nine tenths of the noise. These nozzles have been introduced on many steam vessels and have received the indorsement of the steam vessel supervisors.

COMPACT STEAM PLANT FOR LAUNCHES.—The Milwaukee Automobile Co., Nineteenth street and St. Pauls avenue, Milwaukee, Wis., is offering a very compact steam plant for small launches. The type of this plant is shown in a circular, which contains a picture of the engine and which gives an excellent idea of what a compact plant this is. The boiler of this plant is fired with gasoline and it is claimed that it generates steam in five minutes and will reach 150 lbs. in ten minutes. The engine is 2 1-2 by 3 1-2 in. and is rated at one horse power.

SPRAGUE ELECTRIC CO.—With the beginning of the new century the Sprague Electric Company opened another branch office to facilitate the handling of its constantly increasing business in the South. The new office is located in Baltimore, in the Guardian Trust building, on the corner of Calvert and German streets. The Baltimore office will enable the company to keep in closer touch with the large amount of government work constantly being done and also to handle more conveniently the increasing demand for its various products throughout the South. The manager of the new office is Mr. W. H. A. Davidson, who goes there from the New York office, where he has been for many years. He has sold Lundell motors ever since they have been on the market, and is thoroughly familiar with their characteristics. During the next four years of prosperity there will be many plants and machine shops equipped with electrically driven machines, and the Sprague Electric Company expects a large share of the business. The products of the company have long stood the test of actual service under exacting conditions.

A SUGGESTION.

Leaky Glands Increase the Coal Bill.

EUREKA PACKING in the stuffing boxes is an insurance against leaks.

WATCH FOR THE RED DIAMOND TO AVOID IMITATIONS

Patented EUREKA Trade-Mark

WE MAKE INDICATORS, PLANIMETERS AND MAKE THEM WELL

Jas. L. Robertson & Sons, 218 Fulton St., New York.

....THE....

HEINTZ STEAM SAVER

Has unique points that adapt it for

MARINE SERVICE

It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking. . . . . .

WILLIAM S. HAINES CO.

18th and Hamilton Sts.,

PHILADELPHIA

WESTON STANDARD PORTABLE DIRECT-READING

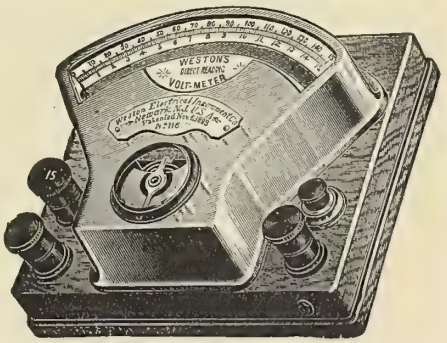
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

BELL'S STEAM ENGINE WORKS.—Bell's Steam Engine Works, Buffalo, N. Y., inform us that they have never had so much work in hand and that they are obliged to run night shifts of men. The company has closed orders for two tug boats, which are to have steel hulls and latest improved machinery. The engines will be built by the Bell Co. In addition to the orders for tugs and engines, the company is selling many steam hammers.

STANDARD PNEUMATIC TOOL COMPANY.—The Standard Pneumatic Tool Co., of Chicago, manufacturers of the "Little Giant" air tools and appliances, has moved its New York offices from 619 Washington Life Building to more commodious quarters at 611-612-613 of the same building, this being necessitated on account of the increase in business in eastern and foreign territory during the past few months. All shipments for customers in the district just mentioned will be made from New York instead of Chicago, thus expediting delivery of machines.

A LARGE CATALOGUE FREE.—Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, Ill., report business very good. They have added several new salesmen to their city department and are now in a position to handle this increased business promptly and carefully. Numerous orders for their Helmet Oil, Perfection and Bonanza Oil cups are being received. They are just introducing a new solid oil cup called "The Badger," which has an octagonal, cast-iron cap with round thread. They are very busy in their tap and die department at their factory in Beloit, and are receiving many orders for their Gardner disk grinders. Among others, recent shipments have been made to Ohio, Massachusetts and New York, and also to the Rock Island Arsenal at Rock Island, Ill. Their new three-hundred page catalogue is now ready for distribution and will be mailed free to any address upon application.

SPRING PAINTING.—It is not too early to begin to consider the subject of repainting, which always comes up in spring. We present herewith some pointers concerning Dixon's Silica-Graphite Paint: "Graphite is as pure, sweet and healthful as charcoal, and has no bad odor. It is not affected by heat or cold, climate or time. It is not affected by acids or any known chemical. Graphite paint is equally useful for metal or wooden surfaces. It can be used on old work and on new work. It may be used on the top of any old paint. It is unsurpassed as a priming coat. It is beautiful, and never fades. Dixon's Silica-Graphite Paint lasts four or five times as long as most paints. It is made in four colors."—*Graphite.*

VENTILATING AND HEATING.—The new shops of the Colorado & Southern R'y, just completed at Denver, Colo., are noticeable for the introduction of many features conducive to the comfort and welfare of the workmen. Among these is a complete equipment for both ventilating and heating the entire plant by the blower system. Separate apparatus furnished by the B. F. Sturtevant Co., of Boston, Mass., consisting of fans and heaters, are installed in the machine and car shops. Air distribution is secured through a complete system of galvanized iron piping. A clear atmosphere is also maintained in the forge shop by means of a large Sturtevant exhauster, arranged to draw the smoke and gases from the 18 special down draft forges, also furnished by the same company.

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CHICAGO PNEUMATIC TOOL COMPANY.—Mr. J. C. Halladay, for many years western sales agent of the Pickering Spring Co., Philadelphia, with headquarters at the Great Northern Building, Chicago, has resigned that position to accept a position with the Chicago Pneumatic Tool Co., Monadnock Block, Chicago, as manager of a new department to be established by the Chicago company March 1.

GRAPHITE SPECIALTIES.—A short time ago Pittsburg capitalists organized the Wisconsin Graphite Company, for the manufacture of graphite paints, greases, pipe joint pastes, lubricants and other specialties. The company has offices at 409 Market street, Pittsburg. The company manufactures all bi-products which emanate from graphite and oxide bases, which come under the scope of its business. The granular graphite, such as is mined by this company, is claimed to be one of the best forms of graphite. As a paint for iron the Wisconsin product is generally recommended because of its tenacity, its resistance to atmospheric action, its insolubility in acids, its fireproof qualities, its extreme flexibility (it being almost impossible to scale or crack it by bending the iron), and its splendid wearing qualities. The manufacturers claim better results can be obtained by its use than with that of any other by reason of the large average percentage of graphite carbon. The iron oxide, as found on the properties of the Wisconsin mines, has been very severely tested and found to produce a very superior oxide for mineral paint, such as is used for exposed woodwork. This paint is especially recommended for stacks and steel hulls.

SHIP AND YACHT RANGES.—The Stamford Foundry Co., Stamford, Conn., has just issued a catalogue regarding its several types of ship and yacht ranges. Regarding the two-oven "Shipmate" range, the catalogue says: The two-oven Shipmate is made for very large vessels. It is extra heavy in the parts where weight is needed to withstand exposure to strong heat or severe strain; the other parts are made lighter, but amply heavy for their position and use. The oven sides against the fire-box, if ever burned out, can be easily taken out and replaced by loosening three bolts, without disturbing any other plate. The top is surrounded by a strong rail, removable at will. Rolling-bars are furnished with every two-oven Shipmate. Ends have rings for securing the range to its place. The range is fitted with flat anti-clinker grate, dumping either to front or side. Water-back can be used when desired, furnished if ordered. The single-oven Shipmate is made in two forms, one for burning coal and the other for burning wood. Both forms are thoroughly well made, and are warranted to work well. The parts exposed to the fire are made especially heavy, so that repairs are seldom needed. The oven is large: the fire-box and ash-pit are also of ample size. The hinge-pins are of Tobin bronze, and cannot rust. The flues are large and deep, insuring operation without need of frequent cleaning. The top is surrounded by a strong rail, either part of which can be lifted out of its sockets at will. The ends have rings to secure range to its place. Two styles of top are made for this range: where the room will admit it, a large top, affording unusually large surface, is furnished; where the space is scant, the range is fitted with a smaller one. The Yacht is practically a small Shipmate. The same care is used in its construction, and it is as well calculated to perform the work required of it. It is especially suited to yachts, fishing smacks, lighters, small tugs, etc. It has removable top rail, rings in end to secure it to its place; oven-door drops to front and forms shelf for basting meats and trying bread; top is large; grate and covers are heavy and durable. It is made in two forms, one for burning coal and the other for burning wood. While each form is best fitted for its own fuel, the wood-burning Yacht can, if necessary, be fitted with coal fixtures also.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

MANAGER FOR SHIPYARD WANTED.

A man competent to manage a shipyard, figure on repair and new work, and who can influence trade, can find an excellent opportunity for entering into business for himself by addressing MANAGER, care MARINE ENGINEERING.

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"Hawkins' Aids to Engineer's Examinations," with questions and answers. Contains all information needed to obtain an engineer's license.

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Notice to Manufacturers.

Reach out for business on Puget Sound and send for a copy of the year book of M. E. B. A. No. 38, for a full list of marine engineers. 245 pages, price $1.50. Address SECRETARY M. E. B. A.,
STARR-BOYD BUILDING, SEATTLE, WASH.

PUMPS FOR THE ARROW.—W. D. Forbes & Co., Hoboken, N. J., have been asked to build the circulating pumps and air pumps and the boiler feed pumps to be used on the high speed yacht *Arrow*, described in MARINE ENGINEERING for November, 1900. The engines to drive the blowers and the electrical plant, etc., will also be supplied by W. D. Forbes & Co.

THE HYDRO-CARBON SYSTEM.—The Steam Boiler Equipment Co., 20 West Houston street, New York city, issues a little folder regarding its system, in which it makes these statements: There is a steady, induced draft, regardless of the atmospheric conditions, or the size or height of chimney. The system is positive, instantaneous, yet flexible in its action; is simple in construction, repairs being easily and quickly made. The smoke, soot and cinder nuisances are abated, leaving the tubes or flues free from soot. Low grades of fuel are successfully burned and there is less refuse, due to the more perfect combustion of the materials. The work accomplished by the "International System" is done by the introduction of a certain amount of hydrogen gas with a chemically correct amount of oxygen, which, holding in check the carbon and gases liberated from the fuel, gives complete combustion. This, it is claimed, not only prevents the formation of smoke and soot, or emission of noxious gases, utilizing all the heat producing qualities of the coal or fuel, and passing it through clean flues effects a substantial saving in fuel. Installations are made with the guarantee to save fuel, increase the boiler efficiency, and prevent the smoke, soot and cinder nuisance. The following letter from the chief engineer and master of steam yacht Nourmahal is published: "After using your apparatus on our eight furnaces the past season under all conditions of service, it was accepted in less than the thirty days allowed for test and trial by the contract—entirely on its merits as a fuel saver, smoke, soot and cinder preventer. We are pleased to report a saving of over 25 per cent. in fuel with increased power. Since putting in your apparatus we have found that we no longer need our two 48 in. blower fans, formerly used for forced draft, as your appliance produced the required increase of pressure much quicker and holds it better—and this at a saving in steam. We are now taking out our blower fans to utilize the space for other purposes."

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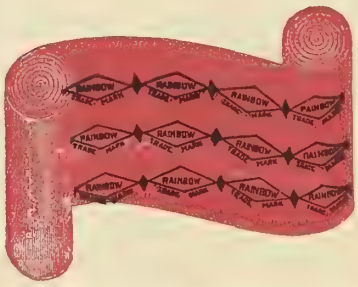
FINE FLANGE, PISTON and VALVE ROD PACKINGS.

Rainbow Packing.

Thousands of Imitators. No Equal. Will Hold Highest Pressure.



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Peerless Spiral Piston and Valve Rod Packing

It will hold 400 lbs. of steam. Will run twelve months in high speed engines.

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} for Hand Holes.

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Fac-Simile of a 6-inch Section of Eclipse Gasket.
Showing Name and Trade-Mark imbedded.

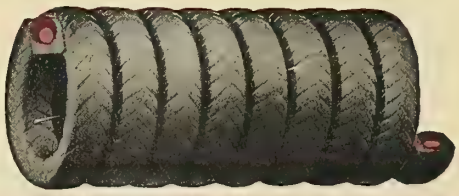
Hercules Combination

METALLIC STOP VALVE PACKING.

Keeps the stem absolutely clean.

Always tight. Put up in boxes.

Honest John.



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TRADE PUBLICATIONS.

"Suggestions for Exterior Decoration" are given in a booklet now being issued by the H. W. Johns Mfg. Co., 100 William street, New York. It refers to the Johns liquid paint, and, in addition to the text, there is considerable information regarding colors and the combinations of colors which are most effective.

Users of gas engines will find an interesting catalogue in the one issued by the Bridgeport Machine and Motor Company, Bridgeport, Conn., describing the Bridgeport gas engine which this company manufactures. The general type and construction of the engine is well shown by a number of illustrations, and there is also some information regarding launches and hulls.

Injectors, ejectors, jet pumps, grease cups, brass oil cups, and other specialties, manufactured by the American Injector Company, Detroit, Mich., are fully described in a 72-page booklet, copies of which can be had upon application. The several specialties referred to are illustrated and described with much detail, and, in addition, there is much information on other subjects, including practical questions for engineers, tables regarding steam pressure, horse power, piston speed, etc.

The upright drilling machines and other tools, manufactured by the Cincinnati Machine Tool Company, Cincinnati, Ohio, have a very attractive and complete catalogue devoted to them, now ready for distribution. Special attention is given to drills with geared tapping attachment on a spindle of the following sizes, 21, 24, 28, 32, 36 and 42 in. The size of the catalogue is 6 by 9 in., and the illustrations are nearly full page in size. Full specifications are given regarding each machine, together with much other information which would be of value to any user of tools of this class.

A third edition has been found necessary by the B. F. Sturtevant Company, Jamaica Plain, Mass., of Mr. Walter B. Snow's lecture on "The Influence of Mechanical Draught Upon the Ultimate Efficiency of Steam Boilers." This lecture treats of the different methods of application of fans for producing boiler draught. Copies can be had upon application. It has also been found necessary by this company to issue a third edition of an instructive booklet, "Bulletin J," relating to "Mechanical Draught; What It Is and What It Does." Copies of this booklet can be had upon application.

Foundry supplies is the special business of the S. Obermayer Company, Cincinnati, Ohio; and one of the most complete catalogues we have ever seen is issued by this company, describing, in full detail, these supplies. The catalogue comprises over 230 pages, and is 6 by 9 in. in size. There is a complete index, covering several pages, and following that, complete descriptions of all the specialties which the company sells. They include everything from small articles of all kinds to the fitting up of complete foundries of any size and capacity. As a book of reference, the catalogue is quite valuable. We infer that a copy will be mailed free to any inquirer.

"Centrifugal Pumping Machinery," manufactured by the Kingsford Foundry & Machine Co., Oswego, N. Y., is very fully illustrated and described in an exceptionally well-printed and arranged catalogue, just from the press. The engravings are particularly fine, and a large number of types of pumps is shown adapted to a great variety of conditions. In the text is considerable information regarding the subject of centrifugal pumps and their uses. There are many tables regarding the sizes of pumps, their capacities, weights, etc. Any user of centrifugal pumps will find this catalogue one of the most satisfactory ones that has been issued on this subject.

A general circular is issued by the International Correspondence Schools, Scranton, Pa., which describes, in a concise manner, the work being done at this school and the many courses which are now open to students. To any one who contemplates studying in any special direction, this circular will be of much value.

The interior conduit, manufactured by the Sprague Electric Company, 527 West Thirty-fourth street, New York, is fully described in Catalogue No. 404, now ready for distribution. It is a very complete catalogue, comprising over 140 pages, very fully illustrated with a fine grade of engravings and printed on exceptionally fine paper.

The 1901 catalogue of the Lundell Fan Motors is now being distributed by the Sprague Electric Company, 527 West Thirty-fourth street, New York. It is a handsomely printed catalogue, containing many illustrations of fan motors of all types, ceiling and other fans, small exhaust fans, etc., together with much information regarding each of the specialties.

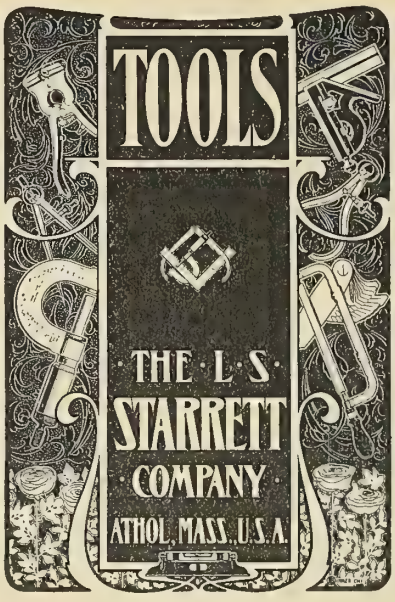
Bolt threading machinery is one of the specialties of the Webster & Perks Tool Company, Springfield, Ohio, and a special catalogue devoted to machinery of this kind is issued by the company, copies of which can be had upon application. Several sizes of machines are illustrated in the catalogue, and there is considerable information regarding them in the text.

"Uncle Sam's Experience with Paints" is the title of a booklet just issued by the National Lead Company, 100 William street, New York. The printing is done in colors. There are many small illustrations which go with the text. Several of the illustrations are pictures of the painting of ships, ships' hulls and other marine work. The text gives much information regarding the general subject of paint.

Air pumps, vacuum pumps, air and circulating pumps, condensers and other steam specialties, together with the refrigerating machines and other machines manufactured by the Stilwell-Bierce & Smith-Vaile Company, Dayton, Ohio, are fully described in a most complete and comprehensive catalogue, just from the press. There are many illustrations of each of the specialties; and much descriptive and technical matter is given, so that the catalogue is one of much value for reference. Because of the number of specialties particularly designed for marine uses, the catalogue will be of much interest to many of our readers.

"Vertical Milling Machines" is the title to Catalogue No. 53, now being distributed by the Becker-Brainard Milling Machine Company, Hyde Park, Mass. Like all literature of this company, the catalogue is very handsomely printed, and is a most excellent specimen of the printing art. It comprises 40 pages, and on each page is a finely executed engraving, most of them illustrating some special line of work for which this company's milling machine is adapted. There are also many full-page illustrations of machines of several types and sizes. The catalogue is so complete in the text, tables and other matter, in addition to the illustrations, that any user of machine tools cannot fail to value it as a work of reference.

Hydraulic tools, cranes and machinery manufactured by R. D. Wood & Co., Philadelphia, Pa., are fully described in an exceptionally complete and handsomely printed catalogue. It is about 9 by 11 in. in size, comprises nearly 100 pages, and is very fully illustrated. Much of the apparatus described is of interest to those who have to do with the use and purchase of machinery for shipyards, as they include beam and angle bending presses, shears and cranes of all kinds and in great variety, flanging presses, hoists of all kinds, manhole and other punches in great variety, riveters of all kinds; in short, nearly all kinds of tools which would be used in the construction of steel hulls and boilers. Most of the illustrations are large and well made.



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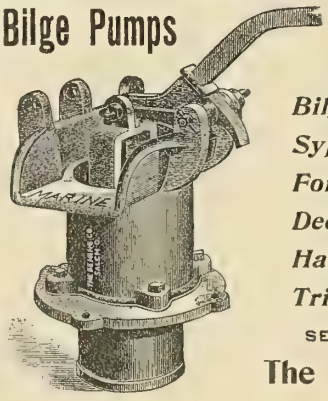

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Syphon Pumps,
Force Pumps,
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Triplex Pumps.

SEND FOR CATALOGUE.

The Deming Co.,
Salem, Ohio.

Steamboat pumps, ships' bells, steamboat, engine-room and other bells, gongs, etc., have a special catalogue devoted to them, known as "Catalogue C," which has been issued by the E. W. Vanduzen Company, Cincinnati, Ohio. The many illustrations add much value to the use of the catalogue.

A marine catalogue, devoted exclusively to electrical supplies, is issued by the Burnet Company, 121 Maiden Lane, New York. The catalogue comprises about 80 pages, is handsomely printed on heavy, half-tone paper, and contains many illustrations of all kinds of lamps and fixtures which would be used in steam vessels. These include not only lamps for interior uses, but signal, anchor and other lamps, controlling devices of all kinds, all the fixtures and attachments that go with electrical work, incandescent lamps of all kinds, search lamps of all sizes, directly-connected electric plants from the smallest to the largest sizes, blowers, ventilators, hoists, etc.

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GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

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London Office: 26 Victoria Street, Westminster.

The United States Metallic Packing Company, Thirteenth and Noble streets, Philadelphia, Pa., has issued a pocket size booklet, describing the several types of its metallic packing, and of an ideal method for lubricating this packing. Copies can be had upon application.

The dustless method of cleaning by the use of compressed air is described in a catalogue which is being distributed by the General Compressed Air Cleaning Company, Lincoln Trust Building, St. Louis, Mo. The catalogue comprises about 30 pages, and is very fully illustrated, showing the application of the system.

"The High Grade, Up-to-Date, Labor-Saving Machine Tools," built by the Hamilton Machine Tool Company, Hamilton, Ohio, are concisely described in a pocket-sized booklet just issued. It is very neatly printed, and contains nearly a dozen illustrations of this company's tools, including drill presses, radial drills and engine lathes.

Lustral finishes for exterior and for interior uses, manufactured and sold by the H. W. Johns Mfg. Co., 100 William street, New York, are described in a neat folder, which is now being distributed.

Users of pinions will find interesting a 4-page folder issued by the New Process Raw Hide Company, Syracuse, N. Y., describing the special features and advantages of the raw hide pinions manufactured by this company.

BUSINESS NOTES.

BULLOCK APPARATUS.—During the past few weeks the Bullock Electric Mfg. Co., Cincinnati, Ohio, has furnished a large number of generators and motors for various purposes, not only throughout all parts of the United States, but in several foreign countries. The motors have been adapted to many uses, particularly to operating machinery under all sorts of conditions.

THE VORHEES RUBBER COMPANY.—The Vorhees Rubber Mfg. Co., Jersey City, N. J., announces that it has secured the services of Mr. George F. Covell, who has been identified for many years with the rubber trade, and who will hereafter devote his entire energies to the interests of the Vorhees Company. Mr. Covell has been intimately connected with the rubber trade along the Atlantic coast for a great many years.

SECTIONAL RING PACKING.—The Eagle Oil & Supply Company, 104 Broad street, Boston, Mass., reports a constantly growing demand for its sectional ring packing. Users of such packing who are interested and inquire, will have forwarded to them testimonials and full information, upon application to the company. Upon request, the company will send Catalogue No. 7, which gives much information regarding this company's goods.

VULCAN ASBESTOS MATERIALS.—The Vulcan Asbestos Company, 116 Maiden Lane, New York, is making a specialty of a line of asbestos goods designed especially for marine work. This includes high pressure packings of all kinds, gaskets, cement and such other combinations and manufactures of asbestos as would be used in connection with steam plants. The company issues a pamphlet, which describes, with much detail, its many specialties.

STEAM YACHT "ARROW."—Professor Carl C. Thomas, of the Department of Marine Engineering, New York University, University Heights, New York city, has been given entire charge of the finishing of the design and construction of the steam yacht *Arrow*, which was recently described in these columns. He will also have entire supervision of the tests of the hull and of the machinery, and will also supervise every detail of the trial test which, it is hoped, will come off in May.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

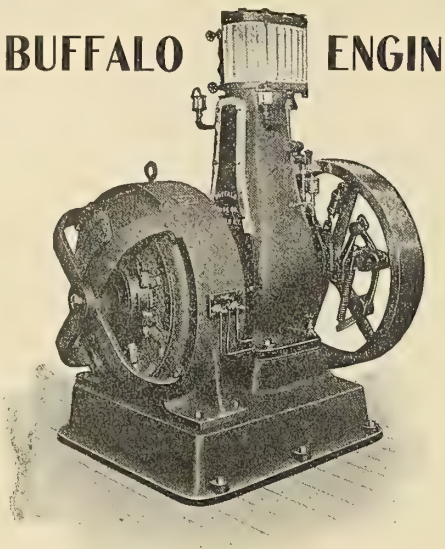
VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO ENGINES



Buffalo Single Vertical Engine
Direct Connected to Marine Type Generator

Buffalo Forge Company

Office and Works
BUFFALO, N. Y.

New York Office
39 CORTLANDT ST.

FORCE FEED LUBRICATION.—Those of our readers who are in charge of engines will be interested in the subject of force feed lubrication, as described in a booklet issued by the Sterling Lubricator Company, Powers Building, Rochester, N. Y.

METALLIC PACKING.—The Reeves Machine Company, Trenton, N. J., issues a little folder, which contains a picture of this company's metallic packing, which, as it states in the text, "is a packing that packs." It is claimed that this will pack any piston rod, no matter how badly scored, if it is not shouldered. It also packs valve stems. In any use, it can be renewed without taking down the piston.

DRAUGHTSMEN'S SUPPLIES.—Owing to the great increase in its trade on the Pacific coast, the Keuffel & Esser Company, 127 Fulton street, New York, has found it necessary to open a branch house in San Francisco, at 303 Montgomery street, where a full line of drawing materials and all other specialties will be carried in stock. This part of the business will be under the charge of Mr. John R. Carr and Mr. W. E. Holcomb, who have long been connected with this company.

SOMETHING NEW IN BLOCKS.—The Boston & Lockport Block Company, 142 Commercial street, Boston, Mass., is putting on the market something new in the line of blocks, called the "Star Malleable Iron Blocks." They are light, but strong, and it is believed they will last much longer than wooden blocks, although costing but very little more. The sheaves run on steel pins, with nuts, and are easily removed. The block is so constructed that the edge of the sheaves cannot wear sharp. Thus, there is much wear saved on the rope. The blocks are made in size from 2 to 8 in., and handle anything from a 1-4 in. to a 1 in. rope. This company issues a very complete catalogue describing its many specialties, a copy of which can be had upon application.

The Mixing——

That is, the keeping of paint in suspension during use, is frequently a considerable item of expense. It takes about one hour out of eight of the painter's time to keep pure lead in suspension.

Zinc White Paints

Do not settle in the pot; therefore the user gains not only in beauty, spreading capacity and durability, but in time consumed in applying.

The New Jersey Zinc Co.

FREE:
Our Practical Pamphlets, "The Paint Question," "Paints in Architecture," "House Paints: A Commonsense Talk About Them."

71 Broadway,

NEW YORK.

WATSON WATER TUBE BOILER COMPANY.—The Watson Water Tube Boiler Company, Elizabeth, N. J., has been incorporated under the laws of the State of New Jersey, to manufacture the Watson Water Tube Boiler.

SEMI-BRONZE PACKING.—The Charleston Metallic Packing Company, Charleston, S. C., which also has a branch office at 32 Oliver street, Boston, reports a steadily increasing demand for its semi-bronze packing. In addition to the New England office, arrangements have just been made with the New Jersey Asbestos Company, 47 Dey street, New York, to carry in stock a full line of all sizes of this packing.

A GOOD YEAR.—The annual stockholders' meeting of the Boston & Lockport Block Company was recently held at the office of the company at Lockport, N. Y., at which time the following directors were chosen to succeed themselves: Albert D. Bosson, Frank Gebbie, Myron H. Tarbox and Mrs. Adelaide C. Beverly. The above named directors held their meeting at the office in East Boston, and the following officers were elected for 1901: President, Albert D. Bosson of Boston; vice-president, Frank Gebbie of St. Johnsville, N. Y.; secretary and treasurer, Myron H. Tarbox of Boston; assistant secretary, Alfred B. Tarbox of Boston. The treasurer in his report showed that the company had a very satisfactory business last year, and had every prospect for a good business for the beginning of the new century; and he noted that there had been a great increase not only in tonnage, but in the size of the vessels being built; and blocks that at one time would have been considered all right for all purposes seem insignificant compared with what is now required. The introduction of wire rope rigging, also the fact that now many sails are hoisted by steam, necessitates the use of blocks of the strongest and best quality that can be obtained.

PIPE JOINT PASTE.—The Wisconsin Graphite Company, 409 Market street, Pittsburg, Pa., makes special claims for its pipe joint paste, especially that it insures an air-tight joint which will last as long as the joint itself, and resist heat, cold, acids, etc.

SHELBY SEAMLESS TUBING.—The Shelby Steel Tube Co., Cleveland, O., announces that for the expeditious handling of its business and the convenience of its customers, it has arranged so that all inquiries and orders in the States west of New York, Pennsylvania, Virginia, etc., shall be addressed to the Chicago office; all orders and correspondence from the States mentioned, also the other New England States and Canada, shall be addressed to the New York office, New York and Chicago being the main selling offices. It has also arranged to carry a stock of tubes in the store in New York city, thus enabling it to make quick delivery to all eastern and southern customers. The western trade will be promptly supplied from the mills in Toledo, Shelby, Greenville, Albany and Ellwood City.

DURABLE WIRE ROPE.—Since its introduction a few years ago, the Durable wire rope, manufactured by the Durable Wire Rope Company, 288 Congress street, Boston, Mass., has met with a large sale in all directions in which wire rope is used. Among the customers of the company are a large number of steamship owners, steamship lines, including the Ward, Clyde, Mallory, Munson, Cromwell, Morgan, Old Dominion, and other coastwise lines; the Atlantic Transport, French, Dominion, Cunard, Furness, Leyland and other translantic lines. A fair illustration of the testimonials which the company is receiving regarding its goods is shown by the following, which was written by E. E. Saunders & Co., Pensacola, Florida: "The Durable wire rope, which is used on the *Carrie N. Chase*, has so far given us excellent satisfaction. We will hereafter refit all standing rigging when necessary with Durable wire rigging, believing that it will be best for us to use it, as the salt water cannot get at it to make it rust. Our trouble with standing rigging has always been salt water would get into it about the deadeye and cause it to rust off. We have vessels now that are not over seven years old that are using their third set of standing wire rigging. We are greatly obliged to you for the information in regard to caring for it. We believe that the Durable wire rope is bound to play an important part in the equipment of the fishing vessels in the future."

MEDIUM UNIVERSAL SAW.—The Bentel & Margedant Co., Hamilton, Ohio, finds much demand in shipyards and boat building establishments for its medium universal saw. It is designed to be a complete and efficient rib and cross cut saw and suitable for all kinds of straight angle and bevel sawing. The frame is heavy and rests well on the floor, the joints being planed and securely bolted. The saw housing is a strong, swinging frame with the fulcrum near the countershaft, and is adjusted up and down by means of a screw upon which it rests. This admits the use of various sizes of saws, and does away with idlers and belt tighteners. The large iron table, 48 in. long by 34 1-2 in. wide, rests in a true center line with the saw on two radial guides, which permits the tilting of the table from a horizontal position to an angle of 45 deg. It is held securely at any angle by a radial clamp and lock nut. It is set quickly by means of an accurate graduated scale and index provided at the end of the frame. The table is provided with two parallel ways for the reception of a cross cut gage, one on either side of the saw. This gage can be set at any angle for angle cutting, and without measurements, by means of an accurate graduated scale cut deeply in the table top. The ripping gage moves easily back and forward across the table by means of rack and pinion feed. One 16-in. saw is furnished with the machine, but saws up to 18 in. dia. can be used. Gaining, grooving, etc., can be done on this machine by special arrangement.

A SUGGESTION.

Leaky Glands Increase the Coal Bill.

EUREKA PACKING in the stuffing boxes is an insurance against leaks.

WATCH FOR THE RED DIAMOND TO AVOID IMITATIONS

Patented EUREKA Trade-Mark

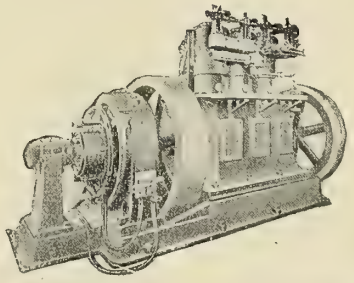
WE MAKE INDICATORS, PLANIMETERS AND MAKE THEM WELL

Jas. L. Robertson & Sons, 218 Fulton St., New York.

WESTINGHOUSE ELECTRIC — THE NAME WESTINGHOUSE IS A GUARANTEE

Westinghouse

Electrical Apparatus



WESTINGHOUSE GAS ENGINE GENERATING SET.

Universally adopted for Mechanical Design and Electrical Efficiency.

Westinghouse Electric & Manufacturing Co.

PITTSBURG, PA.

All principal cities in United States and Canada

61 D

ASHTON VALVES.—The Ashton Valve Co., 271 Franklin street, Boston, Mass., has appointed Mr. Geo. E. Hubbert, 123 North Fourth street, Philadelphia, Pa., special agent for that city for Ashton pop safety valves, steam gages and other Ashton specialties.

SEAMLESS BRASS TUBING.—The U. T. Hungerford Brass & Copper Company, 121 Worth street, New York, has lately secured several large contracts for supplying the United States Government with seamless brass tubes. As the Government subjects all tubes to critical tests, the fact that such large orders were given to the Hungerford Company is regarded as a high endorsement of its goods. This company also furnishes a large amount of brass and copper tubes to shipbuilders who have work on hand for the United States Government.

A DISASTROUS FIRE.—In the early part of last month, the splendid new plant of the Olds Motor Works, at Detroit, Mich., was very seriously damaged by fire. The origin of the fire is believed to have been the escape of natural gas. The company had all the orders that it could attend to, and was seriously crippled for a short time; but, fortunately, the company had duplicate patterns in its shop at Lansing, and was, therefore, enabled, by putting on more pressure, to go right on with the work with little interruption. Fortunately, a very large addition to the Lansing plant was nearly completed, so that there will be a very slight delay in filling orders, not only for launches and launch engines, but for automobiles, or, as they are called, Oldsmobiles, and other products. The company had on its books at the time orders for 334 of these vehicles.

"Benedict-Nickel"

Seamless Tubes, for Condensers

contain no zinc nor any weakening metal:

They resist all electrolysis and corrosion:

The tubes are formed by a hot-rolling process which by a single operation transforms a solid cylindrical billet of the heated metal into a seamless tube, perfectly homogeneous and absolutely flawless:

The tubes are then cold drawn to give them a smooth finish inside and outside.

The "NEWARK" was the first of the U. S. Navy to use "Benedict-Nickel" tubing for condenser purposes. Tubes of **"BENEDICT-NICKEL"** which were taken from the condenser of the American Line Steamer "St. Paul" after 28 months' service were in perfect condition.

A treatise on "Electrolysis of Condenser Tubes" mailed upon request.

We are also manufacturers, in a large way, of TOBIN BRONZE, Rod and Sheet; COPPER Sheets and Bolts; Seamless COPPER and BRASS Tubing for Condensers and other Marine Work.

BENEDICT & BURNHAM MFG. CO.,

Mills and Main Offices, WATERBURY, CONN.

Depots: NEW YORK, 253 Broadway BOSTON, 172 High Street CHICAGO, Cor. Lake & Clark Sts.

V. WARING N.Y.

BETHLEHEM FORGINGS.—The battleship *Wisconsin* and the Russian cruiser *Variag*, which have recently made such remarkable records of speed, were both fitted with forgings furnished by the Bethlehem Steel Company, 100 Broadway, New York.

STEAMBOAT NOISE-QUIETING NOZZLE.—The Quimby Engineering Company, 915 Ridge avenue, Philadelphia, Pa., reports a great demand for the noise-quieting nozzle which it manufactures for use on steamboats. The design and construction of this nozzle is fully shown in a 4-page folder, a copy of which is sent upon application.

FOR HAWSERS AND RIGGING.—The Ironsides Company, Columbus, Ohio, has a line of manufactures of much importance, apparently, in marine work. One specialty consists, wherever possible, in manufacturing rope, rigging and hawsers in a peculiar manner, so that, it is claimed, the rope is not affected by acid, that it is given additional strength, that there is less trouble from abrasion of strands, that it is made more pliable, and is unaffected by water. When the rope is not manufactured on this special principle, the company has a preservative which is claimed to serve as a shield, and will greatly prolong the life of the rope. A kind of paint, called Ironsides' Paint, is also manufactured, which is designed especially to protect wire rope, stacks, and all metal surfaces from corrosion. The same qualities are claimed for the paints that are claimed for the other specialties. Circulars regarding this company's manufactures can be had upon application.

AN EXPOSITION BOOKLET.—Another booklet is being sent out from the Bureau of Publicity of the Pan-American Exposition, Buffalo, N. Y. It consists of 16 pages and a cover in light green. The unique feature of it is the miniature reproduction of the famous poster, "The Spirit of Niagara," which has had a most remarkable demand. The booklet is a popular picture book, the first page having an engraving of the magnificent Electric Tower, which is 391 ft. high. On the same page is a miniature of one of the torch bearers which will adorn the wings of the Electric Tower, and beside it a picture of Niagara Falls. The second page shows a picture of the Electricity Building. The third page shows the splendid group of buildings erected by the National Government. The fourth page is devoted to the wonderful displays of Government ordnance; the fifth to the Machinery and Transportation Building and four other illustrations of modern machines and vehicles. The center of the booklet shows a bird's-eye view of the Exposition, and gives one some idea of the great extent of the enterprise upon which about $10,000,000 is being expended. The grounds contain 350 acres, being half a mile wide, and a mile and a quarter long. Copies of the booklet can be procured by addressing the Pan-American Bureau of Publicity, Buffalo, N. Y.

....THE....

HEINTZ STEAM SAVER

Has unique points that adapt it for

MARINE SERVICE

It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking.....

WILLIAM S. HAINES CO.

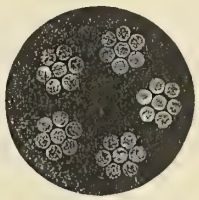
18th and Hamilton Sts.,

PHILADELPHIA

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

WESTON STANDARD PORTABLE DIRECT-READING

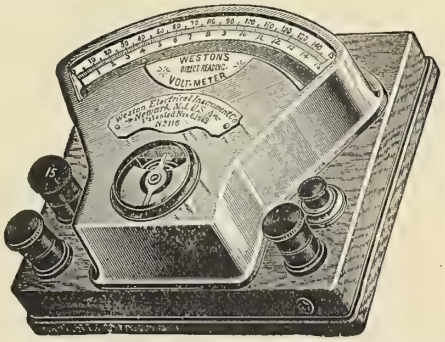
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

THE PARAGON BOILER.—Capt. M. DePuy, 19 South street, New York city, inventor of the Paragon boiler, has just received a letter from the J. H. Johnston Shipbuilding Company, Portland, Oregon, which is as follows: "I wish to know the cost of your Paragon boiler, with 500 ft. of heating surface, and to have a working pressure of 150 lb. Boiler would require a fire box of not less than three feet deep, on account of wood being used as fuel. Now I wish to say that the boiler I had built from your plans, having 1,500 ft. of heating surface, is giving entire satisfaction and is furnishing more steam for the weight and space occupied than any boiler that I have ever seen." The inventor informs us that he has also received a letter from the Willamette Iron & Steel Works, Portland, Oregon, asking that arrangements be made with Riter Bros. & Co., Buffalo, boiler makers, to help them fill orders for Paragon boilers.

BESLY SPECIALTIES.—Messrs. Charles H. Besly & Co., 10 North Canal street, Chicago, Ill., western representatives of the Pecora Paint Company, carry a complete stock of this company's machinery and other paints, and have worked up a large trade in them in the West. This paint has been on the market since 1862. It is made in various forms and in a number of colors, and is being daily used on engines and other machinery. A special feature claimed for it is, that it is dust-proof in 10 minutes, and that it dries hard in 30 minutes. It has also been used extensively for gas engines and radiators. This company also offers iron filler and blow-hole cement, which are of great use to manufacturers of metal work of any kind when the goods are to be given a finish. This cement will stand 200 degrees of heat. A sample of it will be sent to anybody upon inquiry. The firm's catalogue, which is one of the most complete one issued, will also be sent to anybody upon application.

OBERMAYER'S PLUMBAGO.—The S. Obermayer Company, Cincinnati, Ohio, which manufactures and handles everything in the line of plumbago, black lead, and all other specialties for foundry uses, furnished the plumbago, as stated in their circular: "This is the blacking that made the castings, that started the engines, that turned the screws, that sped the ship on her famous trip, without a jar, or break or slip, the marvelous record-breaking run of our navy's pride, the *Oregon*."

THE CINCINNATI STEERING GEAR.—Crawley & Johnston, Cincinnati, Ohio, who manufacture the Cincinnati Steam Steering Gear, have sold many steerers for use on the Great Lakes and on the seacoast, as well as on the river boats. This firm has received many complimentary testimonials from users of the steering gear, among them the following from a pilot of the Ohio River boat *Hudson:* "In my mind it unquestionably is the best steam steering gear in use to-day for its simplicity, quick acting, sensitiveness, power, etc. I have examined several different devices for steering and they are all too complicated. I don't know of a boat that was more in need of it than the *Hudson*, as she is a heavy boat to steer. On an ordinary stage of water, say 8 or 10 feet in a dark night, when the boat had a fore trip of freight on, the pilot often was compelled to stop her or run slow so as to keep her out of trouble; but now with this steam steering gear we can steer her any place, full head of steam with the greatest ease. To give you some idea what it is to change the *Hudson's* rudders when she is backing, it required two men at the wheel to change the rudders under a half head of steam, slow and hard work at that, and now I can change them with one hand when she is backing under a full head of steam, in case of a pinch it comes in good play."

STANDARD SEAMLESS TUBE CO.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

NATIONAL TUBE COMPANY, Selling Agents

SALES OFFICES

Havemeyer Building, New York
95 Milk Street, Boston
Conestoga Building, Pittsburg
267 So. 4th Street, Philadelphia
Western Union Building, Chicago
420 California St., San Francisco

Foreign Office—Dock House, Billiter Street, London, E. C., England

TWO LARGE CONTRACTS.—Morse, Williams & Company, Philadelphia, Pa., who manufacture worm gearings, elevators, etc., have recently received two very important contracts. One is for the new Union Passenger station in Pittsburg, consisting of five hydraulic passenger elevators, two passenger and freight elevators, and six freight elevators, all of the latest improved designs. The other contract is for passenger and freight hydraulic elevators for the Chesapeake & Ohio Railroad Company.

STURTEVANT SPECIALTIES.—The B. F. Sturtevant Co., Jamaica Plains, Mass., reports its business of the past year to have been the largest in its history. In the line of standard types of blowers, exhausters and hot blast heating apparatus, its products have kept pace with the recent industrial movement. The installation of fans for the production of mechanical draft has shown a great increase. The volume of domestic and foreign orders for forges has been noticeable, while the output of the rapidly growing electrical department has been far in excess of the previous year. This electrical output has been principally in electric fans of all types and small high grade generating sets. The company's Chicago office has been removed to 281-289 South Clinton street. The Sturtevant Engineering Co. has recently moved its London (England) office to 147 Queen Victoria street, in order to secure the increased accommodation necessary for its rapidly growing business as the European representatives of the B. F. Sturtevant Co., of Boston, Mass. A new branch office has been established at 31 Rue de Provence, Paris, and a change made in the location of the Glasgow office to 45 Hope street. The offices at Berlin, Stockholm, Amsterdam and Milan remain the same.

MILDEW AND WATER PROOF CANVAS.—The Neptune Mildew and Water Proofing Co., 34 Wilson street, Jersey City, N. J., is receiving many testimonials regarding its process for making sails, awnings, boat covers and other canvas products mildew and water proof. A circular issued by the company is devoted to letters giving testimonials from those who have used this process. The following letter from Cousens & Pratt, 414 Atlantic avenue, Boston, Mass., is a type of the testimonials: "The Neptune Mildew and Water Proofing Co., R. Puhlman, Supt., 34 Wilson street, Jersey City, N. J.: Dear Sir—During the spring of 1896 we sent you a large proportion of the new sails that we made to be treated with your mildew proofing process. We take pleasure in saying that in every instance our customers have been highly pleased with the success of the process. Among the sails treated were those used by the writer on his own boat. The months of June and July were phenomenally wet, and though no covers were used on the sails, and absolutely no attempt was made to dry them out, they were, at the end of the season, perfectly white. The sails which you treated included the highest grade of Egyptian and American cotton. Already we have on our order book a number of suits of new sails for yachtsmen whose sails you treated last year, and who have specified that your treatment shall be given to their new work. We do not consider that the fabric is injured in any way by your process."

WE are prepared to supply any book, not out of print, on Naval Architecture, Marine Engineering, or other technical subjects.

Aldrich & Donaldson,
309 Broadway,
New York, U. S. A.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

MANAGER FOR SHIPYARD WANTED.

A man competent to manage a shipyard, figure on repair and new work, and who can influence trade, can find an excellent opportunity for entering into business for himself by addressing MANAGER, care MARINE ENGINEERING.

PUMP SALESMAN WANTED.

Any man who can sell pumps can find a good position by addressing STEAM PUMP, care MARINE ENGINEERING.

BOUND VOLUMES WANTED.

I will pay a good price for complete sets of MARINE ENGINEERING, Vols. I and II, 1897 and 1898, bound or unbound. BENJ. E. HARRAR, 512 West 9th Street, Wilmington, Del.

AGENTS WANTED.

Agents wanted to call on all consumers of Metal Polishes, particularly on board yachts, steamers, etc. Address, for particulars, BERTRAM'S OIL POLISH CO., Boston, Mass.

WATERPROOF GLUE.
Specially adapted for all Marine Woodwork.
CASEIN COMPANY OF AMERICA,
74 John Street, New York.

Engineer's Library
"Hawkins' Educational Works," for Engineers, Firemen, Machinists and Electricians. Sold on easy terms of payment. Send postal card for catalog.
THEO. AUDEL & CO., Publishers,
63 FIFTH AVENUE, - - - - NEW YORK CITY.

HOLLOW STAYBOLTS.—The Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, is now rolling hollow bolts by a recently improved process, which enables it to produce hollow bars, of iron or steel, on an average of 8 ft. long, any size outside or inside diameter and perfect in every detail. The bars are all ready to cut, thread and apply, which saves the expense of drilling telltale holes.

COAL, POWER, AND LUBRICANT.—"A good lubricant is a trifle as to its cost, but it is not a trifle as to consequences. A lubricant is to save power in machinery. If the cost were one hundred times more, we would use it. Even then the true question would be, not what lubricant costs least, but what lubricant saves most of power and machinery. The magnitude of lost power in machinery is variable; it is always large. It may, probably, be fairly estimated that one-half the power expended in the average case, whether in mill or shop, is wasted in lost work, being consumed in overcoming the friction of surfaces. The real value of a lubricant to the user depends upon the value of power saved by its use. To the large user of power, poor and inefficient lubrication means enormous waste of power and costs for repairs. Practical experience is far superior to theory, and while it has been most thoroughly demonstrated that an oil or grease is necessary for saving power and preventing wear, it has been just as thoroughly demonstrated that Dixon's pure flake graphite is a solid lubricant that largely enhances the lubricating value of oils and greases. Furthermore, where this graphite is used a cheaper or lower grade of oil or grease can be used, and the expense of lubrication reduced as well as power saved." Extract from a circular regarding graphite lubrication issued by the Joseph Dixon Crucible Company, Jersey City, N. J.

The Peerless Spiral Piston and Valve Rod Packing

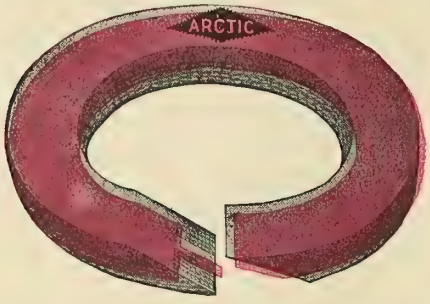
It will hold 400 lbs. of steam

Once tried always used

Will run twelve months in high speed engines

Arctic Packing

To be used exclusively for packing Ammonia Pumps



This packing is made in several hundred sizes

This packing is specially constructed for ice machine service, of layers of rubber and plies of duck which are so arranged and laid as to best resist the actions of ammonia, cold and heat.

The duck is a specially made duck, frictioned with an entirely new compound heretofore unknown to the rubber trade, and the core and back is of the celebrated Rainbow Packing compound, which is specially adapted to resist ammonia, cold and heat.

This packing is constructed on a strictly scientific basis, and the results obtained thus far have demonstrated fully its value for ammonia packing.

This packing is made in several hundred sizes. The rings may be slipped onto the rod very readily.

The usual rule is to be observed in giving measurements, the depth and width of stuffing box and size of piston rod, in order to get the size desired.

Sole Manufacturers of the

Celebrated Rainbow, Eclipse Sectional Rainbow Gasket, Hercules Combination and Honest John Packings.

MANUFACTURED, PATENTED AND COPYRIGHTED EXCLUSIVELY BY

THE PEERLESS RUBBER MANUFACTURING COMPANY

16 WARREN STREET, NEW YORK.

16-24 Woodward Ave., Detroit, Mich. 202-210 South Water St., Chicago, Ill. 17-23 Beale St. and 18-24 Main St., San Francisco, Cal.

These Goods Can be Obtained at All First-Class Dealers.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.

12 West 31st Street, New York.

President, CLEMENT A. GRISCOM.
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" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

The Joseph Dixon Crucible Company, Jersey City, N. J., issues each month neat blotters which are also calendars for the month. Probably any of our readers whose name is sent to the company will receive this calendar and folder each month as it is issued.

Fire Proofed Wood is the title to a folder distributed by the American Wood Fire Proofing Company, 11 Broadway, New York. The value of this wood for the interior finishing of yachts, launches and other craft is becoming to be more and more appreciated each year. This folder will give much information of value.

The Man with the Shovel is the title to a booklet which has just been published by the Eagle Oil & Supply Co., 104 Broad street, Boston, Mass. It treats of scale solvent and incrustation and gives much information which would be of interest to many of our readers who have anything to do with marine boilers. A copy will be sent free to anyone who applies for it and mentions MARINE ENGINEERING.

Leaky Boiler Tubes is the title of a catalogue which will interest many of our readers, and copies can be had by writing to Elisha Webb & Sons, 108 South Delaware avenue, Philadelphia, Pa. The reading matter is very complete, and the "Handy" tube plug is fully illustrated. That the plug is not an experiment is shown by the number of vessels, both Government and merchant marine, together with many well-known yachts, upon which they have been used.

Pleasure Boating is the title to a very neat catalogue now ready for distribution by the Dutton Engineering Company, Perth Amboy, N. J. It is very neatly printed. It contains an article on the advantages of the gasoline motors, with much information regarding them, together with pictures of the types of motor manufactured by this company. Pictures are also shown of the hulls which this company manufactures, and there is much other information.

Yachtsmen and others interested in compact steam power outfits for yachts and launches will find much of interest in the catalogue issued by the John M. Rogers Boat, Gauge & Drill Works, Gloucester, N. J. The double acting engine is fully illustrated and concisely described; following this is a completely illustrated article on the oil burning steam generator. In the following pages the oil burning device is fully illustrated and described, and much other information is given; also tables of sizes, capacities, etc.

How to Pack your Engines and Piston Rods is the title to a handsomely illustrated and printed catalogue of twenty-four pages issued by A. W. France, 6512 State street, Philadelphia, Pa. The catalogue refers to the France metallic packing. A number of illustrations of the packing are given, showing the manner of its construction, and each illustration contains the necessary descriptive matter. Sectional views of the packing are shown which explain fully the manner in which the packing is applied. Any of our readers who have to do with packing will want a copy of this catalogue, especially because of the description of the high pressure marine packing.

The Almy water tube boiler is fully described in the 1901 catalogue which is just issued by the Almy Water Tube Boiler Co., Providence, R. I. The catalogue contains a picture of the works of this company, which have recently been much enlarged. There is a great deal of information regarding these boilers, which are made in several types and for all conditions. The engravings include an exterior view, also a view of the boiler with the casing removed, showing the arrangement of the tubes. Both single and double boilers are shown, and in sizes from small launch boilers up to a pair of about 750 I. H. P. Every one of our readers interested in boilers will find this catalogue well worth sending for.

Ray D. Lillibridge, systematist, 20 Broad street, New York, is distributing a folder regarding his business. This business, as the folder states, is the scientific care and arrangement of advertising details. Any manufacturer interested in the subject can secure further information by sending for a copy of the folder.

A free coupon ticket is issued, which is good for one first-class passage from Boston to Success, by the Eagle Oil & Supply Co., 104 Broad street, Boston, Mass. A concise statement is given on each coupon of the best road by which the destination is reached. Any of our readers who wish one of these tickets can have it upon application.

A handsome calendar, lithographed in six or eight colors, is issued each month by the Bullock Electric Mfg. Co., Cincinnati, Ohio. It is one of the handsomest calendars we have ever seen issued, and being only 3 1-2 by 6 in. in size is very convenient. We understand that copies will be sent each month to anybody applying for them.

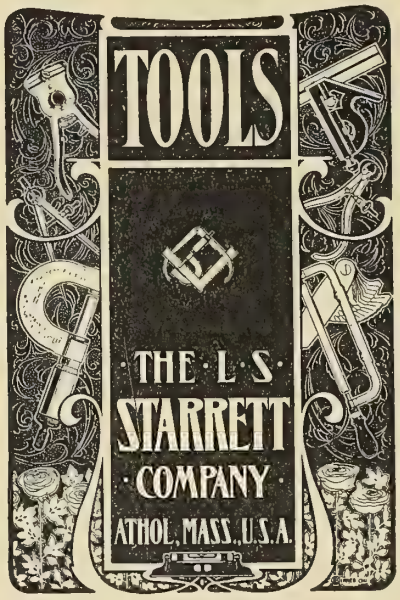
The maintenance of electrical machinery, according to the system of the Maintenance Company, St. Paul Building, New York, is described in a folder now being distributed. This folder shows how carefully the company looks after the interests of its clients and explains the advantage of having an electric plant under the immediate supervision of experts.

The interior enamel paint, which has a porcelain finish, is one of the specialties of the H. W. Johns Mfg. Co., 100 William street, New York. The folder, which contains samples of five different colors of this paint, is being distributed, and can be had upon application. These paints are recommended especially for use on interiors of vessels and yachts.

A bulletin of twenty-eight pages, devoted to the Lundel motors, known as Bulletin No. 205, is now being distributed by the Sprague Electric Co., 527 West Thirty-fourth street, New York. It is very completely illustrated with both half-tone engravings and sectional views. There are also tables of sizes, capacities, revolutions, and much other information.

The Hamilton-Foster Fog Signal Co., 11 Broadway, New York, has issued an eight page folder describing the Foster fog signal. This device was illustrated and described in MARINE ENGINEERING a year ago or more. Since then it has been adopted by the United States Lighthouse Board, and the system is now being manufactured for introduction both in this country and abroad.

The four pole dynamos and motors and generating sets manufactured by the C. & C. Electric Co., 145 Liberty street, New York, have a special bulletin, No. 139, devoted to them. As this bulletin supercedes the previous ones, all of our readers who are interested in the subject of electrical machinery, and especially the compact direct connected electrical sets, such as would be used for marine purposes, will find this bulletin well worth their careful study.



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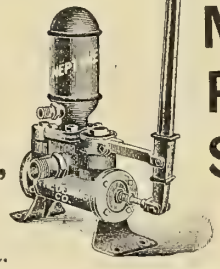

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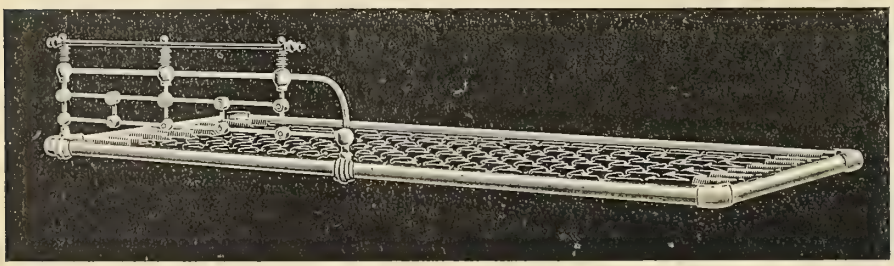

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SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

HIGHLY TRAINED MAN SEEKS POSITION.

An energetic, robust young man shortly to graduate from Massachusetts Institute Technology—courses Naval Architecture and Mechanic Arts—desires position with ship building firm. Is a good draftsman, excels in mathematics, is clever with tools and has had thorough technical education. Address "TECHNOLOGY," care MARINE ENGINEERING.

The catalogue issued by the Chicago Cement Coating Co., 1641 Monadnock Block, Chicago, Ill., contains a number of very handsome illustrations of well-known buildings in several parts of the country on which this cement coating has been used. It is described as an effective and permanent water proofing for brick, stone, cement and concrete work.

The "Noark" fuses manufactured by the H. W. Johns Mfg. Co., 100 William street, New York, are fully illustrated and described in Bulletin No. 5, now ready for distribution and which is also a revised price list.

Paints and Varnishes is the title to a complete and useful catalogue and reference book issued by the Forest City Paint & Varnish Co., Cleveland, Ohio. It comprises thirty-six pages, has a complete index and many illustrations, together with much information regarding paint, colors of all kinds, varnishes, the mixing of paints, etc. Copies can be had gratis upon application to the company.

The Imperial air compressors manufactured by the Rand Drill Co., 128 Broadway, New York, are described in an exceedingly handsome catalogue of sixteen pages, which is just issued. The engravings are fine half-tones of full page size. The descriptive matter is very complete, describing in full detail the important features of the compressors. To anyone interested in this subject the catalogue is one of the best we have ever seen.

Disc and propeller fans are described in catalogue No. 116, issued by the B. F. Sturtevant Co., Jamaica Plain, Mass., and which is now being distributed. To say that it is the usual type of Sturtevant publication is enough to recommend it to all our readers. There are many illustrations of propeller fans, both belt driven and electrically driven. The text is right to the point and the tables give full information regarding diameters, revolutions, etc.

BUSINESS NOTES.

PNEUMATIC TOOLS.—Owing to the steadily increasing demand for its pneumatic tools the Philadelphia Pneumatic Tool Co., Philadelphia, Pa., has found it necessary to largely increase its shops, so that it now has a frontage on Ridge avenue, Eleventh and Noble streets, and for greater convenience and larger offices it removed on April 10 from the former address to No. 1038 Ridge avenue.

DIRECT CONNECTED FAN OUTFIT.—The Buffalo Forge Co., Buffalo, N. Y., have received the following letter from the Elmira Water, Light and Railroad Company, Elmira, N. Y.: "We are very much pleased with your direct connected fan outfit for forced draft purposes at our lighting plant. Our saving on the first month's run with this apparatus in use amounted to 175,000 lb. of coal, and on the test for increasing the capacity of our boilers we found that with a fan, on 250 H. P. water tube boiler, developed on a continuous run of ten hours, a little over 600 H. P., and while we do not advocate forcing the boilers to any such extent, it simply shows what can be done in this line in case of necessity." The apparatus in question consisted of one Buffalo standard 80 in. steel plate fan with direct connected 5x5 Buffalo single vertical class "A" engine, serving two 250 H. P. boilers.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

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Which does not Weep under heavy pressure.

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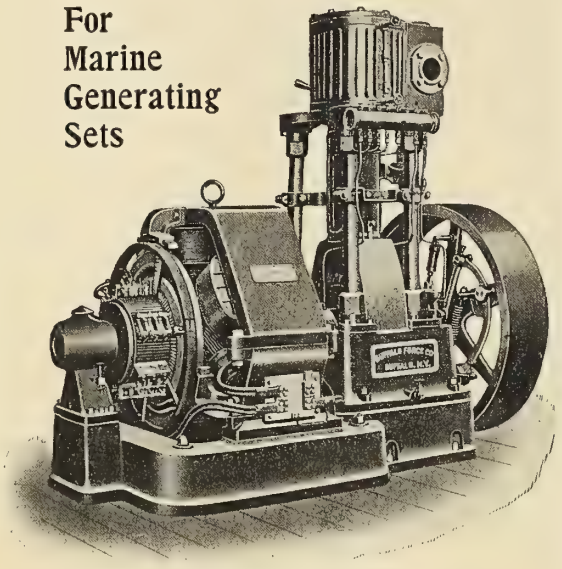
For Marine Generating Sets



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A Suggestion

It is to the interest alike of paint manufacturers and consumers to establish beyond controversy what is the best paint. We have good reason for asserting that pure Zinc White in pure linseed oil will outlast in appearance and in protective value any other white paint yet produced. Others insist otherwise.

Why not settle the controversy by a series of tests on an adequate scale?

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We propose that a competent and impartial Committee shall paint, or supervise the painting, under like conditions as to exposure, of a series of buildings of like or similar construction, with pure **ZINC WHITE,** pure white lead, and with varying proportions of these in combination ranging from 10 per cent. to 90 per cent. respectively; similarly also with combinations containing varying proportions of the inert pigments. If, then, at the end of each 10 years it be not shown that **ZINC WHITE** increases the durability of paint and improves the appearance of the buildings or portions of buildings on which it is used, we will for each such year, at the expiration of which the verdict shall be adverse, endow with the sum of $1,000 any trade school recommended by the Committee having a class in painting and decorating. Provided always, that others who may accept this challenge will engage to do likewise in and for any year in which our contention shall have been established.

FREE:
Our Practical Pamphlets, "The Paint Question," "Paints in Architecture," "House Paints: A Commonsense Talk About Them."

The New Jersey Zinc Co.

71 Broadway, - NEW YORK.

PARAGON BOILERS.—We are informed by Capt. M. DePuy, 19 South street, New York, that he is installing one of his well-known Paragon boilers on his steamer *Acme*. This boiler is 6 ft. wide, 10 ft. in dia., and has 150 tubes 2 1-2 in. dia., 8 ft. long, and will stand a pressure of 150 lb.

ENAMEL PAINTS.—John Mair & Sons, 136 South Delaware avenue, Philadelphia, Pa., offer a specially prepared enamel paint designed for yachts and which is called Veluvine non-fading Enamel. It is free from many objections to ordinary enamels. Easily applied; quickly dried; gives a surface like marble; will not fade; and keeps its color for years. All the colors will stand hot water, and can be used for baths. China white is specially made for the walls of dark rooms, but rather more liquid, quicker drying and more easily worked than the other Veluwe paints. It gives a bright, china-like surface, which does not turn yellow in the darkest room.

GRAPHITE GREASE.—Marine engineers will be interested in an experiment recently made by the superintendent of motive power of one of the large western railways, which has been using graphite grease on the main driving rod brasses. He altered the oil cups, which were welded fast to the rod, by boring them out and screw-threading them on the inside, and then making a cap, also screw-threaded, thus forming a compression grease cup. The superintendent has these grease cups on three compound engines of very large size, of 140 to 150 tons, and found the grease worked in a very satisfactory manner. The engineer on one of these engines states that when he gets ready to go out on his run he gives the cap of the grease cup one turn and pays no further attention to it during the entire run of 165 miles. There are no hot pins, and everything works perfectly. They are changing all of their other engines over from oil to grease as fast as possible. Information regarding this grease can be had from the Dixon Crucible Company, Jersey City, N. J.

BEARINGS WITHOUT OIL.—The Graphite Lubricating Co., Bound Brook, N. J., is meeting with a steadily increasing demand for its bearings, which have a dry lubricant so contained that without oil of grease the friction is reduced to a minimum, and damage from neglect of oiling, stoppage of the oil duct, heating and cutting of the shaft effectually guarded against, and durability of the bearing under trying circumstances assured. Heretofore the trouble has existed that no good way was known to apply the graphite and hold it permanently in position. In perfecting the anti-friction bearing it was found necessary to use in connection with the graphite compound a special bronze, having the best anti-frictional properties that could be produced. All kinds and shapes of revolving and sliding friction surfaces have been provided for by this method of lubrication. The company's customers include some of the largest builders and manufacturers in the world in ship building, machine building and general manufacturing. The largest bearings made so far are 7 and 5-8 bore, 20 in. long, and the smallest 3-8 in. bore, 1-2 in. long. As regards wearing qualities the company tells of a loose pulley bushing which has run ten years without oil or grease, and is still in use. The bearings are used at as high a speed as 2,500 rev. per min. They can be used with oil, but if any oil is necessary it does not require 1-100 part that the usual bearing does. The Moore & White Company, Philadelphia, Pa., builders of paper machinery, recently wrote: In October, 1890, we erected a counter shaft with a friction clutch pulley 15 in. dia., 8 in. face, 2 2-16 in. bore, running 439 rev. per min., to drive our dynamo. This pulley was bushed with one of your graphite bushings, and has been run continuously ever since, running about eight hours every day loose on the shaft, as the dynamo has only been used for light. This pulley has not been oiled more than two or three times and then by mistake, and it apparently is in as good condition as when put up.

Ross Valve Company.—The Ross Valve Co., Troy, N. Y., has taken a choice space at the Pan-American Exposition, and will make an exhibit of feed water filters, regulating valves and other specialties, for which this company is well known. All the readers of Marine Engineering who attend the Exposition are invited to examine the display made by this company.

Ashton Valve Co.'s Branches.—The Ashton Valve Co., Boston, Mass., has recently appointed Mr. Frank J. Corbett as assistant manager of its New York office at 121 Liberty street. He will more especially introduce the lines of Ashton pop safety valves and steam gages among the architects and stationary engineers of Greater New York. The Ashton Company's foreign office is at 1 and 2 Rangoon street, London, E. C., England.

Blake Pumps.—The S.S. *Korea,* which was launched a few weeks ago from the yard of the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., for the Pacific Mail S.S. Co., will have a complete outfit of Blake vertical marine pumps of the regular Navy type, including cross compound "featherweight" air pumps of the Wheeler design. The sister ship, the *Siberia,* which will be launched shortly, will have an equipment of Blake pumps. Further information regarding these pumps, together with catalogues, etc., can be had upon application to the George F. Blake Mfg. Co., 91 Liberty street, New York.

The Twentieth Century Luck Coin.—Bertram's Oil Polish Company, 222 State street, Boston, Mass., give with every package of its polish, either oil or paste, except with their smallest size, one of the most popular pocket pieces that has ever been offered. It consists of a coin of 1901 inserted in a horseshoe of aluminum. All users of metal polish will appreciate one of these coins, and packages of this metal polish can be purchased from almost any ship chandlery or engineers' supply store in the country. Bertram's polish has been on the market for many years and is very widely known, especially among yachtsmen and in the merchant marine. The company issues an eight page folder, a copy of which can be had upon application, containing letters from over twenty captains and other officers of yachts and vessels, speaking in the highest terms of this polish. The polish contains no acid, ammonia or other injurious substances, does not injure wood work with which it comes in contact, and holds its lustre for a long time. These claims, with other good qualities of the polish, are emphasized in the folder.

Brass and Copper Goods.—Although the U. T. Hungerford Brass & Copper Co., 121 Worth street, New York, has a particularly large trade in condenser tubes and other forms of seamless brass and copper tubing, it carries on a very extensive trade in all kinds of specialties manufactured from these metals. Builders of yachts and wooden vessels can purchase from this company anything in the line of bolts, rods, nails, rivets and sheet brass and copper. Special attention is also given to anything which may be called for of either brass or copper.

Acetylene Search Lamp.—A. H. Funke, 101 Duane street, New York, has put on the market the Baldwin acetylene searchlight, for yachts and launches, which is a good, simple and powerful light for use on a dark night. The lamp is very handsomely made of polished brass throughout and is finding a ready sale. Being self-contained, the disagreeable generator and tank in the cabin is not necessary. Two styles are now being made, one for sailing yachts and open launches, operated by a handle in the rear of the lamp; another fitted with an ingenious attachment whereby the lamp is perfectly controlled from the cabin or pilot house. The manufacturer will send circulars to any one mentioning having seen the description in the Marine Engineering.

Scientific Sail Making.—When Wilson & Silsby moved into their new quarters at Rowes Wharf, Boston, Mass., they thought that the new quarters would be ample for years to come. Last year, however, the firm was crowded with orders, and the present season has far exceeded anything the firm has ever experienced in the rush of business. Between January 1 and the middle of April they finished over 175 suits of sails for different yachts. One set has already been made for the Boston cup defender, and another set is now under way. At least fifty of the fastest boats are fitted with sails made by this firm. The *Rainbow,* which has Wilson & Silsby sails, has won thirteen prizes. Last month the firm sent a set of sails to Australia, and has the prospect for a number of orders from that country. They have an agent in Sweden, and carry on a regular and satisfactory business with that country. The Sweden representative is G. R. Liljegren, Gothenburg. Sails have also been sent during the past few weeks to Seattle, Vancouver and other places on the Pacific coast. This firm has always devoted itself to the making of sails scientifically, and has always been favored with orders from some of the best yachtsmen.

Westinghouse

Electrical Apparatus

Marine and Shipyard Installations

All Principal Cities in U. S. and Canada

Westinghouse Electric & Manufacturing Co., Pittsburg, Pa.

61 Q.

THE VINCENT GATE VALVE.—Sweet & Doyle, Cohoes, N. Y., manufacturers and sales agents of the Vincent gate valve, report much interest in this new valve, a feature of which is its universal adjustable wedge. This valve is simple in construction and meets the requirements called for by the high measures used. Circulars and full information regarding the valve can be had upon application.

MR. CLARK MERCHANT.—Last month Mr. Clark Merchant, who is widely known among marine people as the head of the firm of Merchant & Co., of Philadelphia, Pa., has been highly honored by being elected president of the Schuylkill Traction Co., which owns 28 miles of electric railway in the suburbs of Philadelphia. Mr. Merchant is a graduate of the Annapolis Naval Academy class of 1857. He resigned from the Navy at the close of the war in 1865, and established the business which he has built up to such prominence.

PITTSBURG ADVERTISING COMPANY.—The Pittsburg Advertising Company, P. O. Box 423, Pittsburg, Pa., has recently been organized for the purpose of devoting itself exclusively to the interests of manufacturers who seek trade in the engineering and mechanical lines. The management of this company comprises men who have been connected for years with the handling of advertising, and are well known, both among local manufacturers and among publishers.

VENTILATION.—The Protective Ventilator Co., 129 Fulton street, New York, is furnishing ventilators for a large number of buildings as well as vessels. The Protective is one of the simplest and most convenient ventilators, and has proved its efficiency by having been on the market for many years and having been very generally adopted. This company also manufactures the well-known Brotherhood engine, which has been so widely used in connection with ventilators.

———the difference in gauge makes a saving in weight of **25%**, which means a big difference in first cost.

———as **"Benedict-Nickel"** of the same diameter but of thinner gauge is stronger, stiffer and more serviceable in every way, and has double the life of any other tubing, **economy** is one of the strongest arguments in its favor.

———the thermal conductivity is largely increased by using the thinner tube, thereby increasing the condensing efficiency to the greatest possible degree.

———it resists all corrosion and electrolysis.

Send for treatise on "Electrolysis of Condenser Tubes."

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V. WARING N.Y.

BETHLEHEM STEEL CO.'S OFFICES.—The Bethlehem Steel Co., 100 Broadway, New York, announces that it has removed its St. Louis office from No. 930 North Main street to No. 510 Security Building, in that city, where it will continue to be represented by Mr. S. E. Freeman. Owing to increase of business at Chicago the company has moved its offices to larger quarters in rooms Nos. 1520 and 1521 Marquette Building, where it continues to be represented by E. Nelson, sales agent.

FAN BLOWERS IN A SHIP YARD.—The equipment of the great shipbuilding plant of the Fore River Engine Co. at Quincy Point, Mass., exemplifies in marked degree the varied applications of the fan blower. Draft for its boilers is produced by an induced draft fan drawing the gases directly from the uptake flue and discharging them through a small stack extending only a few feet above the roof. Under the forced system fan draft is likewise employed for creating the necessary intensity of combustion in the heating furnaces and forges, while the smoke is removed from the forges through hoods communicating with an exhaust fan. All buildings are heated by the hot blast system, by means of which a fan forces the heated air through distributing pipes and delivers it along the walls and above head level. Notwithstanding the exposed position of the buildings, this —the first winter—has been passed with perfectly uniform internal temperature throughout all of the buildings. The entire equipment of blowers and heating apparatus was installed by the B. F. Sturtevant Co., of Boston, Mass.

NEW NORTON EMERY WHEEL PLANT.—The Norton Emery Wheel Company, Worcester, Mass., is to locate a plant at Niagara Falls for the manufacture of an artificial corundum, which will be shipped to the home works and made into wheels, abrasive paper, hones, etc. The chief significance of this news is that in the opinion of this important company the time has come when the natural abrasives, emery and corundum are to be superseded by artificial ones, both in availability and in quality. Emery is found only in small quantities, and corundum, which is considered superior, is also rare, but by means of a process to which the Norton Emery Wheel Company has acquired the rights, a fine corundum, closely related to the sapphire and the ruby, can be made of uniform quality and in unlimited quantity with the electric current. For this purpose a two-story plant will be erected at Niagara Falls near the power house that is to supply current for the Pan-American Exhibition. The company has secured for it much of the apparatus, including a 1,000 horse power transformer for changing the current from 2,200 volts to the required potential. The appliances are largely special ones, designed by the company's engineers. The plant is to be running by the middle of May. A four-story brick building, lately erected and equipped by the company at its Worcester shops, will be used for crushing and grading the abrasive material after it is brought from the Falls plant.

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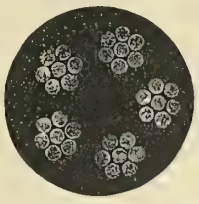

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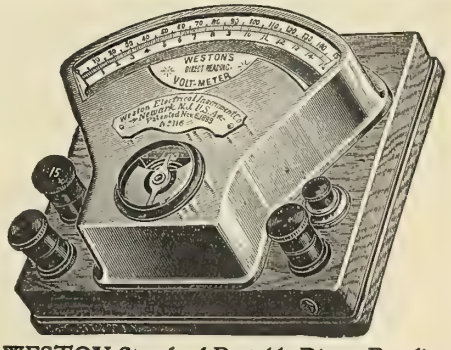

WESTON Standard Portable Direct Reading Voltmeter.

COLL'S EJECTORS.—One of the best known ejectors, or steam jet pumps, as they are called, is Coll's, which is manufactured and sold by the Tranter-Davison Mfg. Co., Pittsburg, Pa. It is used on a great many steam vessels, not only on the inland waterways, but on the lakes and on the coast. The capacity is well shown by the following figures, given by the manufacturers: 1 in., size under 40 lb. steam pressure, has a capacity of 890 gal. per hour; 2 in. size has a capacity of 3,200 gal. per hour. These ejectors are designed to raise water to a height of 35 ft.

ROEBLING CABLES.—On April 7 the John A. Roebling's Sons Company, Trenton, N. J., took the first important step in the making and laying of the cables for the New East River Bridge at New York. The contract was awarded to the company several months ago, and the preparation of plans and other preliminary work, as well as the main part of the contract, which is to follow, is under the supervision of Mr. Charles G. Roebling, the president of the company, who is assisted by Mr. William Hildenbrand. The work done the week ending April 13 was the placing in position of the 2 1-4 in. dia. ropes, which support the temporary foot bridge on which the workmen will stand during the main work of cable laying. Several methods of getting the first line across have been employed in the past, and kites, swimmers and other agents have been tried, but the method employed on this occasion has, we believe, never been tried before, and is a distinct advance over all previous ones. The method adopted was to carry the drum containing the cable across the river on a float (one end having previously been secured) and pay out the cable, allowing it to rest on the river bed until, at the proper time, it could be raised from the water and to the desired height, by means of a stationary engine and drum. The first cable was successfully raised on April 11, the time required being only seven minutes, navigation being, of course, suspended during that period.

PATENT SIREN FOR STEAM VESSELS.—The A. & F. Brown Co., 25 Dey street, New York, manufactures a patent fog horn or steam siren, which has been very generally adopted throughout the United States and by many governments in Europe. The experiments made by General Duane, of the United States Lighthouse Establishment with three machines shows that the siren can be heard under favorable circumstances for from twenty to thirty miles. Prof. Tyndall reports to the British Government that "of all the instruments hitherto examined by us the siren comes nearest to the fulfillment of all conditions."

PORTABLE PNEUMATIC PUNCH.—The Pike & Childs Co., The Bourse, Philadelphia, Pa., is putting on the market a portable pneumatic punch designed for light or heavy work and so constructed that it can be used under almost any conditions. It is claimed that one man with the use of one of these punches can do more work than several men have been able to do heretofore. An important feature is that the machine is taken to the work, and not the work to the machine. The punch is very compact and will punch plates to 3-4 of an inch in diameter. A circular describing the punch is issued, copies of which can be had upon application.

FREE SAMPLES OF HOT IRON PAINT.—For locomotives, steam engines, boilers, etc. Fuller & Kitfield, 2 Kilby street, Boston, Mass., manufacture the "Hot Iron Paint," which is claimed to be unequaled for imparting to iron or steel a smooth, black, glossy surface, and for withstanding a high degree of heat. It is especially adapted for use on steamer stacks, engines, boilers, steam pipes, etc. The manufacturers state that the paint contains no asphaltum, will not peel, burn red or rust off; will not gum, and will last as long as any other paint. It may be applied to surfaces hot or cold. Water fresh or salt, sulphur or acid fumes have no effect upon it. It saves time, labor and expense, and adds greatly to the appearance of boilers and stacks. For free samples or further particulars address the manufacturers.

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A Generating Set.

TECHNICAL EDUCATION.—The great technical schools of the country provide admirably for the education of the designing and constructing engineer, but make no provision whatever for the mechanic, the foreman, the practical man who remains in charge of engine and boiler rooms after the installing engineer has finished his work. To reach and educate these practical working men in ways which will add at once to their value to themselves and to their employers, and hence to their wage earning power, is the chief aim of the correspondence system of instruction. It is not suggested that this system is to take the place of a technical college education in any case where such a course is available; but to those who cannot attend technical schools this system brings the necessary practical instruction in brief, pithy lessons, carefully stripped of all unnecessary theoretical details. The American School of Correspondence, of Boston, Mass., issues sets of instruction papers and books, covering thoroughly the practical details of marine, electrical, mechanical and other branches of engineering. These courses are prepared by trained instructors and are well illustrated. By devoting the spare minutes of each working day to the successive lessons of such a course the student speedily advances until he has qualified himself for the diploma, which is given upon the satisfactory completion of the work. Whenever difficulties arise in following the work the student writes to the instructors of the school, stating the points in question, and receives prompt replies, embodying full answers to his inquiries. This system of direct, personal correspondence between teacher and pupil is continued throughout the course. There is no reason why a pupil should not receive by mail as much personal, individual attention on the part of the instructor as he would get if he were a member of a large lecture class, such as is common in all technical schools.

IMPROVED HOLLOW STAYBOLTS.—The Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, is now rolling hollow staybolts by a recently improved process, which enables the company to produce bars 8 and 9 ft. long and of any size outside or inside diameter. By this new process the company claims that these bars can be made perfect in every detail, and that they are ready to apply at once. Many orders are received by this company for high class work because of the quality of its bolts. The company manufactures a line of superior solid staybolts, which are made of high grade charcoal oil and which are guaranteed to fulfil all the requirements of U. S. Government specifications.

THE BULLOCK ELECTRIC CO.—The Bullock Electric Mfg. Co., Cincinnati, Ohio, through its secretary, Mr. James Wilson Bullock, has acquired control of 15 acres of land directly opposite the present plant at East Norwood, Ohio. Upon this tract the Norwood Foundry Co. will erect a foundry building 200 ft. long by 150 ft. in width; a pattern storage house, fire proof construction, 50x100 ft., three stories high, and a modern office structure. All these buildings will be built of buff pressed brick with steel frames and trusses to conform to the present buildings of the Bullock Electric Mfg. Co. The foundry will be equipped with three electric cranes, the largest of which will have a capacity of 50 tons. The side bays, which will be 25 ft. in width, will be served by hand traveling and jib cranes. The plant will be of the most modern character, and electricity will be used for power and lighting throughout. While this foundry will be operated under the name of the Norwood Foundry Company, it will serve primarily the needs of the Bullock Electric Mfg. Co. It will also be in position to handle outside orders in the most satisfactory manner.

THE HYDRO-CARBON SYSTEM.—The Steam Boiler Equipment Co., of New York, 20 West Houston street, New York, advises us that it has the equipment of the following yachts and vessels: The *Niagara*, completed; also the S.Y. *Margaret*, owned by Isaac E. Emerson, of Baltimore; the S.Y. *Utowana*, owned by Alison V. Armour, and Isaac Stern's S.Y. *Virginia*, nearly completed; and is also putting the Hydro-Carbon system on the S.Y. *Aloha*, owned by Arthur Curtis James, and is doing work for the Mallory Line and the Delaware River Navigation Co. It has just completed an equipment at the Neafie & Levy ship yard at Philadelphia. This system has been introduced on stationary plants as well as marine. One of the plants of this kind has a three horizontal tubular boiler in the works of the Canfield Rubber Co., Bridgeport, Conn. Full details of this test are published in circular form. The results, as shown by the circular, show that the test with the Hydro-Carbon system gave 7.80 per cent of ash, against 8.74 per cent without the system, showing within .92 per cent of possible perfect combustion. The rated horse power of the boilers was 60 each, or 180 total. The test gave 194 horse power with system in use, against 148 without the system, showing increase in horse power of 31.90 per cent.

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3/8 in.
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} **For Hand Holes.**

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} **For Extra Large Joints.**

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TRADE PUBLICATIONS.

The War Tax Changes, taking place after July 1, 1901, is the title of a four page folder, which will be sent to all inquirers by the Boston & Lockport Block Co., 142 Commercial street, Boston, Mass.

The Emmet Mfg. Co., Waynesboro, Pa., has sent out a descriptive catalogue of its vises, showing their many applications for special bench work. Those intending to purchase, or interested in vises, should send for this catalogue.

A series of colored pictures of our warships is being distributed by the Bullock Electric Mfg. Co., Cincinnati, O. This company believes in keeping its friends and the trade advised of its rapid progress in the manufacture of direct and alternating current electrical equipment, and this latest advertisement is in the handy form of blotters.

A fine catalogue, issued by Chas. J. Bogue 213 Centre street, New York, illustrates and describes his search lights and projectors. These instruments are described as of the latest design; embodying many improvements; workmanship and material of the best and as a result these lamps can be called on for constant and hard service.

The subject of smoke consumption is treated in a circular of the W. R. Mills Smokeless Furnace Co., Hartford, Conn. This problem of complete combustion is first taken up in a scientific manner, and then follows a description of the Mills furnace which has been designed to meet the requirements for perfect combustion. Many testimonials of the efficiency and economy of these furnaces are given by parties who have used them for several years.

Bordo Plug Valves are illustrated and described in a neat booklet, published by the Bordo Valve Co., Coatesville, Pa. The valves are constructed so that the packing rests on the plug and is compressed by the bonnet which bears on a brass gland and brass wearing ring. The valve is specially adapted for boiler blow-off and water column blow-off uses, and to be placed between the boiler, and check or water column.

The metal working tools manufactured by Beaman & Smith, Providence, R. I., have a very complete catalogue devoted to them, issued as catalogue E. The specialty of this firm is milling and boring machines, and the completeness of the catalogue is well explained when it is stated that there are about 90 pages 6 by 9 in. in size, devoted to illustrating and describing these machines. The catalogue is well printed and there is an average of a cut on every page. The descriptive matter accompanying the cuts is very complete, although concise. The catalogue is one of much value for reference to users of machine tools.

Steel Forgings.—A folder is issued by the Frankford Steel & Forging Co., Fidelity Mutual Building, Philadelphia, Pa., giving a list of the lines of forgings manufactured by this company. It includes forgings of all kinds for marine engines gas engines, stationary engines, mining machinery, wood working machinery, machine tools, pumping machinery, etc. The company has been so overrun with orders that the plant at Ellwood City has been running day and night for many months. It is only by this constant running of the plant that the company has been able to keep up with its orders. The company has recently supplied a large number of forgings to shipbuilders, some of the recent orders having come from the Neafie & Levy Ship & Engine Building Co., Philadelphia, Pa., the William R. Trigg Co., Richmond, Va., and the Petersburg Iron Works, of Petersburg, Va. These orders were for full sets of marine engine forgings including finished crank shafts. The company has its plans all perfected and in a few weeks will be in a condition to carry on a much larger business. The specialty of the company will be making and supplying forgings of all kinds and for all purposes in finished state.

The manufacture of graphite brushes for motors and dynamos, forms a considerable part of the output of the Joseph Dixon Crucible Co., of Jersey City, N. J. In a recently issued catalogue it gives the sizes and prices of brushes manufactured for the many classes of electric machines.

Gages, drills, reamers, and thread cutting tools, as made by the John M. Rogers Boat, Gauge and Drill Works, of Gloucester City, N. J., are described in catalogue No. 6. In addition to the tables of sizes and prices of the various tools, there are eight pages of useful information for machinists and machine-tool designers.

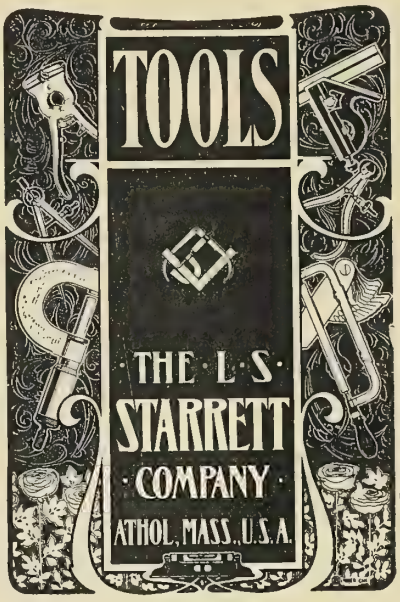
Steel pleasure boats are yearly growing in favor, and the Michigan Steel Boat Co., of Kalamazoo, Mich., is building a line of row boats, clinker, family and portable boats, duck, fishing and trunk boats of most attractive design and finish. Catalogue E, published recently, illustrates the several designs, and also a line of boat furnishings.

"**Protectus**" is the title of an eight page folder and cover issued by the Protectus Co., North American Building, Philadelphia, Pa. Protectus is described as a preservative for metal and wood, which expands and contracts with the temperature, remaining unaffected by heat cold, gasses, etc. Users of paint and others interested in the subjecet will want to peruse a copy of this catalogue.

The Geneva Optical Co., Geneva, N. Y., has issued an attractive little circular giving a brief history of the manufacture of marine glasses from the time of Galileo down to the present day. The glass used by the Geneva company in the lenses of its binoculars comes from the Jena Glass Works, of Germany, and is considered equal to the best in the world. The binoculars have large objective lenses, magnifying four times. A copy of the catalogue can be had upon application.

A complete list of the products of the B. F. Sturtevant Co., Boston, Mass., is given in catalogue No. 115. There one may find sizes, capacities and price of forges, pressure blowers, all varieties of fans, engines, motors, generating sets, hot blast apparatus, etc. The pamphlet is made for desk use and will doubtless be found of much use for handy reference. This company has also published a handsome thirty-six-page booklet containing lists of those who use the Sturtevant Fans.

The Marine Iron Works have just issued catalogue No. 14 from their office and works at Chicago, Ill., describing and illustrating several forms of marine engines, boilers and auxiliary machinery built by them. Among them may be mentioned, several standard sizes of triple, compound, tandem and single cylinder engines, air pumps, feed pumps, condensers, and several forms of water tube and fire tube boilers. This company builds various types of complete boats with single twin screws, side paddle or stern paddle wheels. These craft, when the hulls are of steel, can be built for shipment in the "flat or knock down shape."



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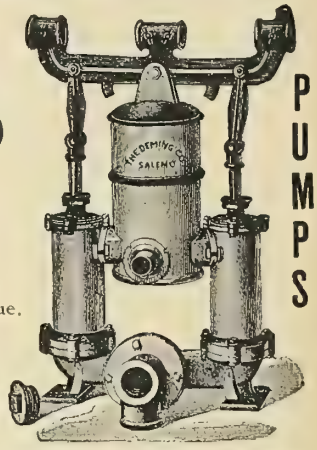

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The Hartford Woven Wire Mattress Co.

P. O. BOX 363. *618 Capitol Ave., Hartford, Conn., U. S. A.*

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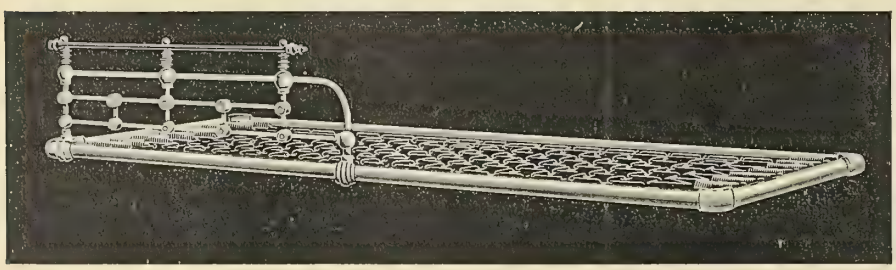
either metal or wood, with woven wire mattress or other spring mattress attached; or

Woven Wire or National Link Mattress only,

for berth bottoms for vessels, steamships, yachts, etc.



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GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J., U. S. A.

SALESROOMS AT
68 Reade Street, New York City.
1020 Arch Street, Philadelphia, Pa.
304 Market Street, San Francisco, Cal.
London Office: 26 Victoria Street, Westminster.

A third edition of Walter B. Snow's lecture on "The Influence of Mechanical Draft upon the Ultimate Efficiency of Steam Boilers" has just been issued by the B. F. Sturtevant Co., Boston, Mass. It treats of the different methods of application of fans for producing boiler draft, of the relative cost as compared with a chimney, of the possible economy in first cost of boilers, running expense for fuel, etc. Copies may be obtained upon application.

One of the handsome catalogues of the season is that issued by Alley & MacLellan, Glasgow, Scotland, presenting some of the many classes of machinery they manufacture at the Sentinel Works. The engravings are excellent, and illustrate high speed steam engines, simple and compound, generating sets, direct connected circulating pumps, and air compressors, steam steering gears, capstans, windlasses and hoisting machinery, feed heaters, evaporators, and all forms of steam valves and fittings.

A small blower, called the Laundry Blower, which is manufactured by the Buffalo Forge Company, Buffalo, N. Y., is illustrated and described in a four page circular.

An Engineer's Hand Book is the title of a pamphlet issued by Wise & Bailey, Philadelphia, Pa. This contains useful information for engineers, and a price list of mill supplies.

Yachtsmen and others interested in motor launches and gas engines will appreciate the desk blotters which are sent to all inquirers by the Mianus Motor Works, Mianus, Conn.

Yachtsmen and others desiring caps and uniforms would do well to secure the new catalogue issued by the Warnock Uniform Co., 19 West Thirty-first street, New York. Prices and styles of all varieties of yachtsmen's and crew's uniforms are given.

Iron and Brass Trimmed Bedsteads is the subject of a forty-two page catalogue issued by the Hartford Woven Wire Mattress Co., Hartford, Conn. Illustrations are given, showing the many styles of bedsteads and wire mattresses made by this company.

The Pan-American Exposition is advertised by several artistically illustrated folders, showing the arrangement of the buildings and describing the many attractions of this Exposition. As a matter of education as well as pleasure, every person who possibly can, should avail himself of this opportunity of learning the progress of the twentieth century, as illustrated in the Buffalo fair, which is now open. Copies of these folders can be had upon application to the Exposition authorities.

BUSINESS NOTES.

REMOVAL OF THE WRIGHT COMPANY.—The Wright Manufacturing Co., which has been carrying on business in Cleveland, O., manufacturing a line of steam specialties, including gages, steam separators, etc., has removed its entire establishment to Detroit, Mich.

BETHLEHEM STEEL CO.—Mr. H. F. J. Porter, who was formerly manager of the Chicago office of the Bethlehem Steel Co., and who has been more recently located at the works at South Bethlehem, Pa., has been appointed New York sales agent for the Bethlehem Steel Co., and will have his headquarters at 100 Broadway, New York.

SIGHT FEED LUBRICATORS.—Elisha Webb & Sons, 108 South Delaware avenue, Philadelphia, Pa., have found a large demand for the Philadelphia sight feed lubricator on board steam vessels. This lubricator can be connected at right angles if desired, and can be placed anywhere between the boiler and the cylinder. The special feature of this lubricator is that it is of the direct feed type. It is not affected by temperature, and the shutting off or turning on of steam does not affect its working. It is easy to operate and is economical in its use. Circulars and full description regarding it can be had upon application.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

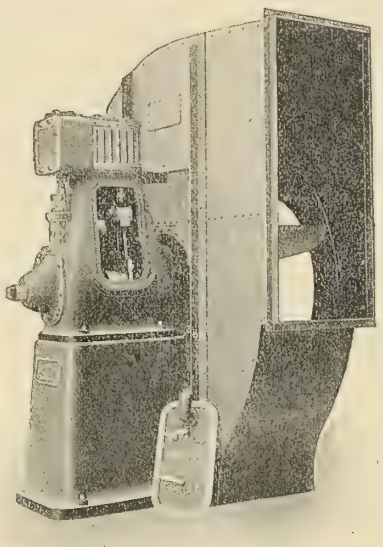
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO STEEL PLATE FANS

FOR FORCED COMBUSTION



BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

The Foundation

Is the important part of any structure, whether it be a building or ordinary paint. The most durable foundation for paint is

Zinc White——

Paints built upon this foundation, with pure linseed oil as the binding material, are economical, beautiful, lasting. There is no other satisfactory paint base.

The New Jersey Zinc Co.

FREE:
Our Practical Pamphlets,
"The Paint Question,"
"Paints in Architecture,"
"House Paints: A Commonsense Talk About Them."

11 Broadway,

NEW YORK.

NEW MARINE RAILWAY.—H. I. Crandall & Son, East Boston, Mass., have just built for W. A. Boole & Son, Oakland, Cal., a marine railway with a capacity of 3,000 tons which is believed to be the largest one on the Pacific Coast.

CRANE COMPANY'S EXTENSION.—The Crane Co., Chicago Ill., which manufactures a full line of valves and fittings of all kinds, will erect this summer a modern fire proof building which is to be used exclusively for office purposes. The building will be 90 by 100 ft. in size, five stories high, and will be located at Canal and Twelfth streets, Chicago.

STEAMSHIP SUPPLIES.—W. J. Schaefer & Co., who have been located on Barclay street for so many years, have found it necessary to secure larger quarters, and have taken a large amount of space at 98 Centre street, New York. This firm has supplies of all kinds which would be called for by steamship companies, such as anchors, anvils, ash cans, babbitt metal, cotton waste, drills, emery wheels, emery cloth, files, gaskets, hose, steam and water, hacksaw blades, lanterns, metal polish, oils and greases, pipe fittings, packing, sheet spiral ring and flax, reamers, rivets, shovels and scoops, tackle blocks, tools of all kinds, taps, valves, wrenches, wheelbarrows, etc.

"IT WILL HOLD A JOINT."—A recent purchaser of Eagleine Asbestos sheet packing from the Eagle Oil & Supply Co., 104 Broad street, Boston, Mass., wrote of this packing, "It will hold a joint." The Eagle Co. offers to send to any person a sample of it for thirty or sixty days' trial. If the packing does not prove all that is claimed for it, it can be returned to the company without expense. This company reports a large increase in its marine trade since C. A. Peaks was added to this company's force. The marine department is now a special department with the company and every effort is made to carry in stock everything that can be called for in the line of ship chandlery, engineers' and other supplies.

BULLOCK-WAGNER OFFICES.—The sales organization, recently established by the Bullock Electric Mfg. Co., Cincinnati, O., and the Wagner Electric Co., St. Louis, Mo., has established a district office in the Marquette Building Chicago, Ill. It will be in charge of Mr. H. B. Foster, who has for about two years served the Wagner Company as sales agent. He will have the assistance of Mr. E. W. Goldschmidt, formerly of the Western Electric Company, in covering this most important field.

LUBRICATORS AND LUBRICANTS.—This is the season of the year when Charles H. Besly & Co., 10 North Canal street, Chicago, Ill., make large shipments of the celebrated Helmet oil, which is used very extensively on board yachts and vessels of all kinds, as well as for other purposes. The company also finds this season the best for the sale of Bonanza and Badger oil cups, two types of cups which are becoming very popular. Other departments of this firm are equally rushed, the tap department running twenty-two hours a day, largely to fill orders for oil cups. Engineers and others who have purchasing power will have sent to them by this firm, a three hundred page illustrated catalogue giving a list of the Besly specialties.

TAUNTON-NEW BEDFORD COPPER COMPANY.—It has been found necessary by the Taunton-New Bedford Copper Co. to secure larger quarters for the New York office, and the company is now located at 77 Water street, corner of Old Slip. This is a most convenient location for vessel trade. There is constantly on hand at this location, a full and complete line of copper and yellow metal, ship sheathing, yellow metal and copper dimension sheets, together with nails, rivets, spikes, etc. This company makes a specialty of copper for vessels of all kinds. In short almost anything in the line of copper or yellow metal required for marine work is always on hand, and anything special in either of these metals can be made to order if not on hand.

A FREE SAMPLE OF SOAP.—A new kind of soap, called Brightine, is being put on the market by Thomas & Co., 120 Classon avenue, Brooklyn, N. Y. It is intended especially for the use of engineers and others for the removal of oil and grease. In order to introduce this soap among engineers, the company offers to send a sample cake, so that the soap may be tested, to anyone who mentions MARINE ENGINEERING.

TWO PRIZES

Of Fifteen and Ten Dollars Each.

Almost every engineer has had an experience of some kind with a breakdown of main engine, boilers, or other machinery, which required much skill in making repairs

Information regarding such emergency repairs is of great interest to engineers, and in order to give opportunity for an exchange of such experiences, we offer two prizes.

FIRST PRIZE

Fifteen Dollars for the Best Story.

SECOND PRIZE

Ten Dollars for the Next Best Story.

All that we ask is that the facts be given as completely and fully as possible. We will write them up. These facts should be accompanied by sketches or drawings giving dimensions and other information. Pencil sketches will be satisfactory if made with a little care.

The prizes will be awarded having in view the completeness of the matter furnished and the clearness of the description and drawings. Further information, if desired, can be had upon inquiry.

MARINE ENGINEERING 309 BROADWAY NEW YORK.

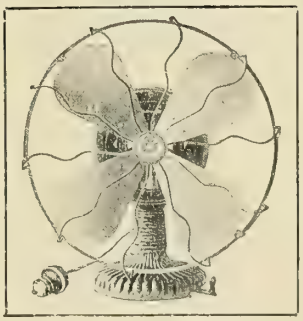
EDUCATION BY CORRESPONDENCE.—Education was until recently regarded as the peculiar privilege of youth. If any one was compelled to leave school insufficiently trained for the work of life, his case was commonly supposed to be beyond remedy. The International Correspondence Schools, of Scranton, Pa., reach men and women engaged in earning a living, with an organized course of study intended to fit them for higher efficiency in their chosen pursuit or to train them for another. The Schools are now doing this important work for thousands in middle life and beyond.

AMERICAN STEAM GAUGE & VALVE MFG. CO.—The American Steam Gauge Co. announces that it is now fifty years old, the business having been established in March, 1851. At the beginning this company manufactured steam gauges with Bourbon springs, and for years was the only manufacturers of this gauge in this country. From time to time new specialties have been added, until the company now has a large line of specialties, making the old name too narrow to represent its business. Hereafter the company will be known as the American Steam Gauge & Valve Mfg. Co. Among the other noted specialties manufactured by this company, in addition to its well known line of gauges for all purposes, is the Thompson Improved Indicator. It has been adopted by the United States and foreign navies, by the principal universities and technical institutes, as well as by the leading engineers and engine builders, and as a further proof of its merit, received the highest award at the Paris Exposition, and was the only American indicator to receive a medal. Another, and one of the largest lines now manufactured by this company, is the American Patent Pop Safety Valves. This line embraces the American, Board of Trade, Navy and United States Marine patent of Marine Pop Safety Valves. Also, American, Special Inspectors', and Compound Lever, Farm Engine, Fire Engine, Locomotive (plain and muffled), Steam Heating, House Heating, Cylinder Relief and Water Relief, and the Underwriter pattern of Water Relief Valves. This latter is now used extensively by the manufacturers of the Underwriter Pumps. In addition to the above leading specialties, this company manufactures a full line of standard appliances for measuring, recording, indicating and controlling steam, air, gas, ammonia and other pressures. The company celebrated its anniversary with a reception and dance in the new plant at Jamaica Plain, Mass.

Fan Motors.

Diameter of Fan 13 inches.

REFRESHING BREEZES FOR MARINERS BECALMED IN THE TROPICS.



For 50 and 100 volt circuits.

Westinghouse Electric & Manufacturing Co.,

PITTSBURG, PA.

New York, Atlanta, Boston, Buffalo, Chicago, Cincinnati, Dallas, Philadelphia, St. Louis, San Francisco, Syracuse, Seattle. Denver, Mountain Electric Co. Ahearn & Soper, Ottawa, Canada.
G. & O. Braniff & Co., City of Mexico.
Westinghouse Electric Co., Ltd., Norfolk St., Strand, London, W. C.

616

NEW WESTON INSTRUMENT FACTORY.—The new plant which has been under construction for many months by the Weston Electrical Instrument Co. is now complete and the company has moved into it. The plant is situated at Waverly Park, Essex Co., N. J. The plant is very much larger than the former one, and is as complete in every detail as it could possibly be made.

LITTLE GIANT TOOL OIL.—In order that the users of Little Giant and other pneumatic tools may have the proper quality and kind of oil for use on these tools, the Standard Pneumatic Tool Co., Marquette Building, Chicago, Ill., is offering what is called the Little Giant tool oil. It is designed primarily to meet all the requirements called for in a lubricant for pneumatic tools. This company recently announced that Mr. J. H. Manning has been appointed western manager for the sale of Little Giant pneumatic tools and appliances on the Pacific coast, with offices in San Francisco, Cal.

MILWAUKEE FORGE & IRON COMPANY.—Mr. Fred C. Starke, who recently organized the Milwaukee Forge & Iron Co., Milwaukee, Wis., now has the plant well on towards completion. He has ordered six steam hammers ranging from 1,100 lb. to 25,000 lb., from the Niles, Bement Pond Co., and much other equipment. The special purpose of the company will be to make forgings of all kinds and sizes, and special attention will be given to high grade marine forgings.

LEAK ARRESTERS.—The James Reilly Repair & Supply Co., 229 West street, New York city, has become special sales agent for the Colomes patent leak arrester. This is especially designed to be carried on vessels of every kind. The arresters are made in different sizes and to suit different conditions, so that in case of a puncture or break in the hull of a ship, temporary repairs can be made. Circulars describing it and illustrating its application will be sent upon request.

No. 19
Stubs' or Birmingham Gauge
"BENEDICT-NICKEL"
CONDENSER
TUBES
Weigh
25% less
than —
No. 17
Stubs' or Birmingham Gauge
BRASS
CONDENSER
TUBES
———the difference in gauge makes a saving in weight of 25%, which means a big difference in first cost.
———as "Benedict-Nickel" of the same diameter but of thinner gauge is stronger, stiffer and more serviceable in every way, and has double the life of any other tubing, economy is one of the strongest arguments in its favor.
———the thermal conductivity is largely increased by using the thinner tube, thereby increasing the condensing efficiency to the greatest possible degree.
———it resists all corrosion and electrolysis.
Send for treatise on "Electrolysis of Condenser Tubes."
Benedict & Burnham Mfg. Co.,
Mills and Main Offices: WATERBURY, CONN.
Depots: NEW YORK, 253 Broadway
BOSTON, 172 High Street
V. WARING N.Y.

NICLAUSSE BOILERS.—Orders have just been placed for Niclausse boilers for the French armored cruiser *Leon Gambetta*, of 27,500 H. P., and 12,00 tons displacement. This ship is the first one under construction by the French Navy since the armored cruisers *Conde* and *Loire* were completed, in both of which ships Niclausse boilers were also installed. Following the trials of H. M. S. *Sea Gull* the English Admiralty ordered Niclausse boilers for the armored cruiser *Suffolk*, of 22,000 H. P., and for the gunboat *Merlin*, of 1,400 H. P. The Russian Government has also just placed an order with Messrs. Niclausse for a boiler plant for the schoolship *Ocean* which is being constructed at the Howald Works at Kiel. The above mentioned sales were made by foreign concerns. The Stirling Company, of Chicago, which controls the Niclausse boiler for the United States, is now completing the installation of boilers in the U. S. battleship *Maine* and the U. S. monitor *Nevada*, and is working on boilers for the two ships now in course of construction by the Eastern Shipbuilding Co., New London, Conn., for the Great Northern S.S. Co.

BUFFALO FORGE COMPANY.—Though not strictly a feature of the Pan-American itself, there will be located a stone's throw from the Exposition grounds a plant which will be well worth the inspection of the visitor interested in mechanical subjects. It is the large plant which has been constructed by the Buffalo Railway Company for the purpose of furnishing power to aid in the operation of its street railway lines during the Exposition period, when a great increase in its traffic is to be expected. One of the features of this plant is the installation of a large mechanical induced draft fan to produce the draft, and handle the gases of combustion from a boiler plant whose nominal capacity will be in the neighborhood of 2,500 H. P. The fan in question, built by the Buffalo Forge Company, of Buffalo, N. Y., is 24 ft. in dia., of the three quarter housing up-blast type, and rigidly constructed of steel plate, braced and stiffened with angle irons. The fan is designed as an exhauster with an inlet 9 ft. in dia. and will be driven by belting to a Buffalo 13x12 Horizontal Center-Crank Class "A" Engine. In order to keep the bearings cool, a constant circulation of water will be maintained around them. The short stack into which the fan will discharge, will be of sheet steel. This particular plant illustrates very nicely some of the inherent advantages of mechanical induced draft. For instance there is no necessity for a tall, heavy chimney, and again, since the whole construction is of steel plate it can be constructed and installed in a minimum length of time. Once in place, such an apparatus provides complete control over the conditions of combustion and renders the performance of the boilers independent of those conditions of weather, wind, temperature and the like which influence plants served with chimneys. The intensity of the draft is in proportion to the fan wheel velocity, and hence can readily be altered to suit varying conditions.

....THE....

HEINTZ STEAM SAVER

Has unique points that adapt it for

MARINE SERVICE

It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking. . . . . .

WILLIAM S. HAINES CO.

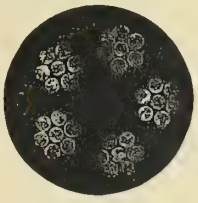
18th and Hamilton Sts.,

PHILADELPHIA

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

WESTON STANDARD PORTABLE DIRECT-READING

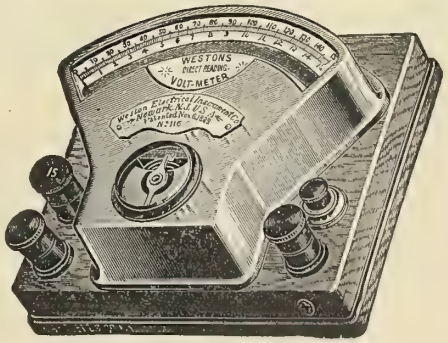
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

Waverly Park, Essex County, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

DAVID BELL ENGINEERING WORKS.—Owing to an expansion in its business, the Bell Steam Engine Works, Buffalo, N. Y., have changed the name to the David Bell Engineering Works. There is no change in the business of the company, as the same specialties as heretofore will be manufactured. The name of David Bell, who originally established the works, has been well known in engineering circles since he first went into business in 1845. As the works are used for other purposes than engine building a change in the name seemed advisable. The company reports a continued demand for its steam hammers and the manufacture of these is becoming an important part of the business. The company will continue the construction of steel vessels and yachts and marine machinery of every description and do a general line of foundry and machine work.

42-INCH ENGINE LATHE.—The Lodge & Shipley Co., Cincinnati, O., manufacture engine lathes which contain several features which render them capable of more work and quicker work than the ordinary so called up to date engine lathe. These features include an Automatic Stop for longitudinal feed. The Taper Attachment, which is fitted, when ordered, is of a patented design, and can be applied to the lathe at any time; it has graduations by 1-8 in. to indicate the taper per foot, and is set for taper work, instantly by screw adjustment, while the operator is standing in front of the lathe. These lathes have a patented mechanism which enables the operator to feed as coarse at 1-3 of an inch to each revolution of the spindle or as fine as 1-84 of an inch, with forty variations. The apron is driven by the lead screw, but the mechanism is so arranged that there is no wear upon the threads of the screw except when screw cutting. Thirty-two different threads—from 1 thread in 2 in. to 14 threads in 1 in.—are chased and all of these can be cut without removing a gear or stopping the lathe to change one pitch to another.

FOX MACHINE CO.'S PAN-AMERICAN EXHIBIT.—The Fox Machine Co., Grand Rapids, Mich., makes a large exhibit of wood and iron working tools at the Pan-American Exposition in the Machinery Building. The iron working tools consist of a full line of milling machines, multiple drills, planers, chucks and pipe cutters, while the wood working tools consist of wood trimers, etc.

H. W. JOHNS COMPANY SPECIALTIES.—The H. W. Johns Mfg. Co., 100 William street, N. Y., has secured a number of contracts for application of its Asbestos Coverings, among which are the following: U. S. S. *Illinois*—Insulation under protected deck. American Aristotype Co., Jamestown, N. Y.—Fire Felt Sectional Covering and Cement Felting. Syracuse Rapid Transit Co., Syracuse, N. Y.—Fire Felt Sectional Covering. Covering of pipes at the residence of C. F. Deterih, Milburn, N. Y., for Hitchings & Co. has been completed. Asbestocel Covering used. Covering of heating pipes at Museum of Art, New York city, has been completed. Asbestocel Covering has also been used throughout the entire plant of the Scoville Mfg. Co., Waterbury, Conn. The contract has also been awarded The Johns Co. for covering all high pressure and heating lines at Atlantic Mutual Building, Wall and William streets, New York city, where Asbesto-Sponge Molded Covering was used. United & Globe Rubber Mfg. Co., Trenton, N. J.—Asbestocel Covering. National Conduit Co., Hastings, N. Y.—Fire Felt Coverings. Lister Agricultural Chemical Co., Newark, N. J.—Fire Felt Coverings. Albany Iron Works, Troy, N. Y.—Fire Felt Coverings used in new plant. Asbesto-Sponge Molded Covering used in School No. 175, Fordham, N. Y. Fire Felt Sectional Covering used at Queens Borough Electric Light & Power Co., Far Rockaway, N. Y., as well as at the Fair Haven & Westville R. R., New Haven, Conn., and Olympia Cotton Mills, Columbia, S. C. Asbestocel Coverings also used in Willard's Hotel, Washington, D. C.

STANDARD SEAMLESS TUBE CO.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

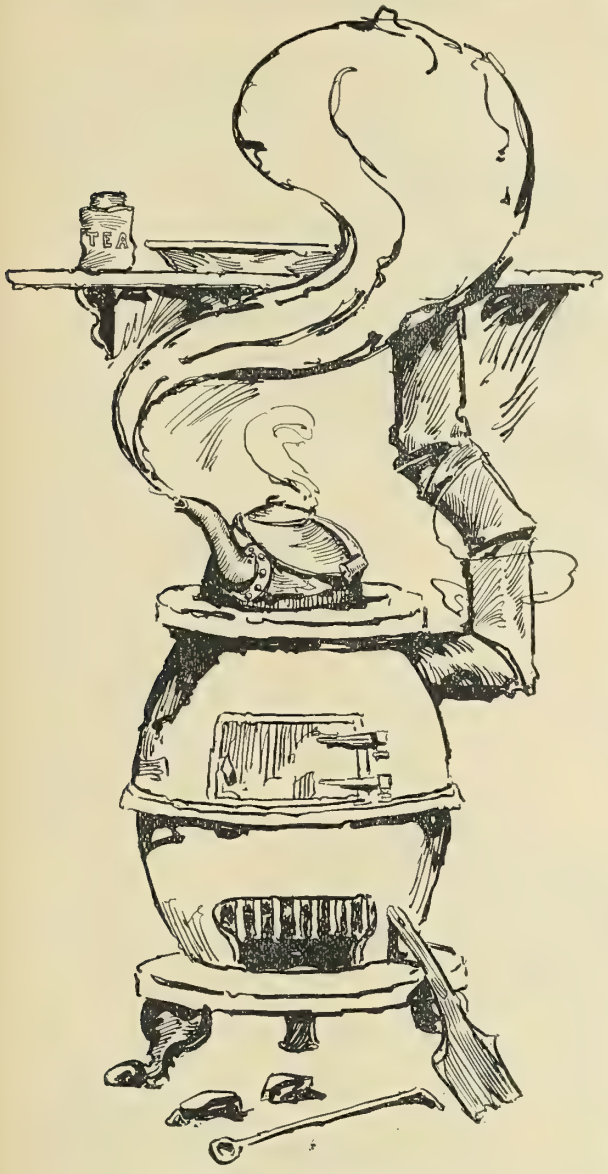
NATIONAL TUBE COMPANY, Selling Agents

SALES OFFICES

Havemeyer Building, New York
95 Milk Street, Boston
Conestoga Building, Pittsburg
267 So. 4th Street, Philadelphia
Western Union Building, Chicago
420 California St., San Francisco

Foreign Office—Dock House, Billiter Street, London, E. C., England

TECHNICAL TERMS ILLUSTRATED.



A Feed Water Heater.

ELECTRICAL SUPPLIES.—The Western Electrical Supply Co., whose eastern offices are at 149 Broadway, New York city, has opened a large storeroom and retail department, where there will constantly be kept in stock a full line of electrical specialties and supplies of all kinds. The company is prepared to do business by telephone or mail. The business is in charge of Mr. H. B. Coho.

A NEW PACKING COMPANY.—The Bostosring Packing & Supply Co. is the name of one of the new corporations in Massachusetts, with headquarters at 170 Summer street, Boston, and the following officers: President and general manager, Mr. John W. Morrison; vice-president, Mr. George T. Coppins, who is also secretary of the Walworth Manufacturing Co.; and the treasurer is Mr. William T. Coppins. This company is to carry a full line of Asbestos packings and a general line of mill supplies. It is the sole representative in the United States for Turner Brothers, Ltd., England, who are claimed to be the largest manufacturers of Asbestos goods in the world, and who also stand near the top of the British Admiralty List, which alone speaks for itself.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

SECOND HAND LAUNCH WANTED.

A second hand launch, 20 to 25 feet long, is wanted. Must be in good condition. Write with full particulars to MOTOR LAUNCH, care MARINE ENGINEERING.

DRAUGHTING ROOM FOREMAN WANTED.

Competent foreman of Draughting room. Give full particulars as to present employment, experience, etc. J. M. BIRMINGHAM, Supt. Columbia Bicycle Factory, Hartford, Conn.

TESTING AND ERECTING ENGINEER SEEKS POSITION.

Position is wanted as testing and erecting engineer in shipyard engine shops by young chief engineer in a large plant. Graduate of an Eastern technical school. Experienced in lining up, tuning up and in running tests on engines, boilers and pumping engines. Good draughtsman and mathematician and success at handling men. Good references. Address TESTING ENGINEER, care MARINE ENGINEERING.

IMPORTANT POSITION OPEN.

The position as Director of the Navy Yard at Horten, Norway, is vacant, and applications, stating applicant's age, technical education and former employment, and accompanied by properly certified copies of testimonials, may be handed in to "Marinestyrelsen," Kristiania, Norway, before July 15th, 1901. The Director, whose salary is Kroner 10,000 (about $2,700), will be required to supervise the management of the Navy Yard, as well as the designing, building and repairing of war vessels.

Study and Reference

Hawkins' Series on Steam and Electrical Engineering subjects for practical men.

Catalog sent on request.

THEO. AUDEL & CO.

63 FIFTH AVENUE *NEW YORK CITY*

WATERPROOF GLUE.

Specially adapted for all Marine Woodwork.

CASEIN COMPANY OF AMERICA,

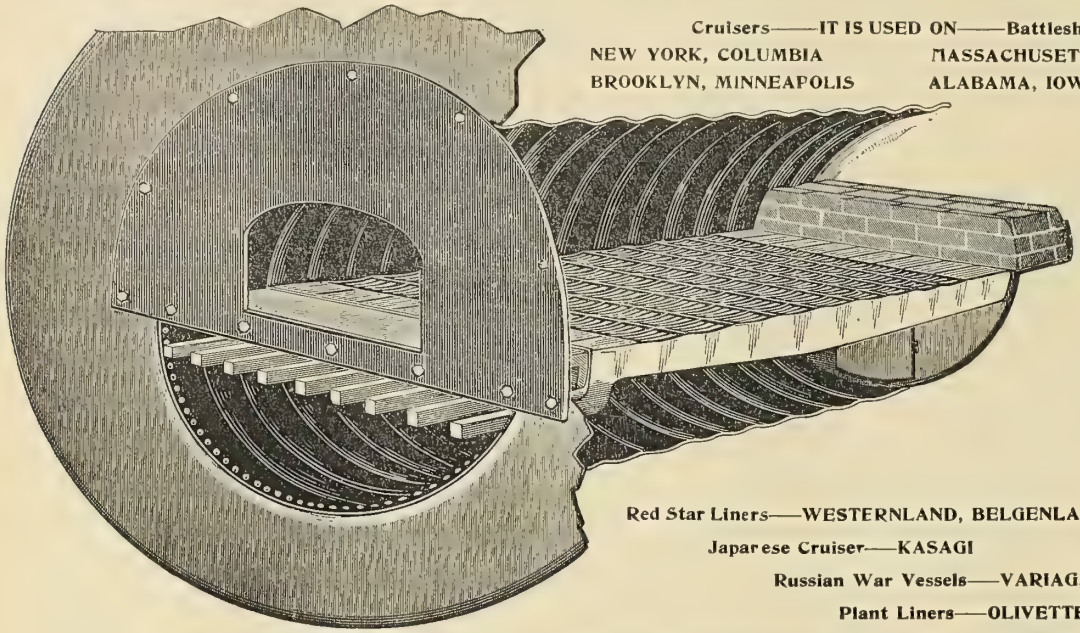
DEPARTMENT F.

74 John Street, New York.

FOLDING UMBRELLAS.—Travelers, yachtsmen and others who have cause to carry an umbrella, will appreciate the improvement introduced by the travelers' folding umbrella, which is made by the Worcester Umbrella Co., Worcester, Mass. This umbrella in appearance is like any other when in use. When not in use it can be folded up into a compact package occupying a space only 15 in. long. Full information regarding the umbrellas, with many illustrations, are given in a circular, copy of which can be had upon application.

BECKER-BRAINARD CO.—The Becker-Brainard Milling Machine Co., of Hyde Park, Mass., exhibits in Block 44, Machinery Hall, at the Pan-American Exposition, the following distinctive types of machine tools: No. 5B Vertical Spindle Milling Machine driven by direct-connected eight-pole variable speed motor. No. 5B Plain Horizontal Milling Machine in operation. No. 14 1-2 Tool Room Universal Milling Machine. 24 Inch Complete Automatic Gear Cutter in operation. No. 3 Cutter Grinder in operation. These machines are selected to represent, as fully as the limited space will permit, the principal lines of tools manufactured by this company. They only give an idea of the extent and variety of designs which their unsurpassed facilities enable them to furnish. The Becker-Brainard works are now believed to be the largest in the world devoted to the exclusive manufacture of milling machines, having just been entirely remodeled and equipped with improved tools.

The St. John Grate Bar is not a new and untried device.



Cruisers——IT IS USED ON——Battleships
NEW YORK, COLUMBIA — MASSACHUSETTS, INDIANA
BROOKLYN, MINNEAPOLIS — ALABAMA, IOWA, MAINE

Red Star Liners——WESTERNLAND, BELGENLAND
Japanese Cruiser——KASAGI
Russian War Vessels——VARIAG, RETVIZAN
Plant Liners——OLIVETTE, MASCOTTE

It has been extensively used on many other well known steamships and has proved to be the Best Grate for Marine Service ever used. For full particulars, address

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TRADE PUBLICATIONS.

A. G. Butler, 101 Beekman street, New York, issues a neat catalogue of cabinets for blue prints and electrotypes also of pattern letters. The cabinets are such as would be especially desirable for use in shipyards and engineering establishments.

Hair Felt and What It Is Good For is the title of a booklet bound in red paper and printed in two colors issued by the American Hair Felt Co., Philadelphia, Pa. As the subject is one of insulation and one which interests every engineer, undoubtedly many of our readers will want to send for a copy of the booklet.

Some facts, figures and results on the economical operation of condensing power plants is the title to a booklet issued by Warren Webster & Co., Camden, N. J. It is printed in two colors, red and black, and neatly bound in paper cover. The subject matter refers especially to the heaters and filters manufactured by this company. There is much valuable information on the subject of steam engineering.

Bettermann's improved boiler flue plug is fully described in an eight-page catalogue now being distributed by Reinhold Bettermann, Johnstown, Pa. The flue plug is described in considerable detail and a number of illustrations are given showing the manner of applying the plug whenever a boiler flue gives out, or for some reason or other has to be put out of service. The booklet is one that will interest every engineer.

The Bullock Electric Mfg. Co., Cincinnati, Ohio, has issued a neat and daintily printed booklet which is being distributed at the Pan-American Exposition. It contains illustrations of many specialties of this company, showing dynamos and direct connected plants, etc. The catalogue is lithographed in a number of colors on a gold background, and is made particularly interesting and useful as it contains shields of all the countries in both North and South America.

Users of riveters, flanging presses, forging presses, hammers and other steam and pneumatic tools will find a valuable catalogue for reference in the one issued by the Chambersburg Engineering Co., Chambersburg, Pa. It comprises sixteen pages with cover and contains a considerable number of illustrations, most of the full page size, of different types of machines. There is also the necessary accompanying descriptive matter. The catalogue is one that will be of much value in shipyards and engine building establishments.

The graphite productions of the Joseph Dixon Crucible Co., Jersey City, N. J., are fully described in a very handsomely illustrated 78-page catalogue, a copy of which will be sent to all inquirers upon receipt of request. The catalogue is one which would be of value to every one of our readers, as it covers everything in the line of graphite specialties, including paint for exterior and interior uses on both metal and wood surfaces, cement, crucibles, lubricants, foundry facings, etc. It is an effective catalogue and is particularly valuable because of the completeness of the reading matter and the thoroughness with which the tables supplement the text. The illustrating is especially complete.

The air compressors manufactured by the New York and Franklin Air Compressor Co.'s have a very complete and well printed catalogue devoted to them now being distributed either from the New York office at 95 Liberty street, or the works at Franklin, Pa. The pages are of large size and the printing is in two colors. The illustrations include besides the works of the company, pictures of air compressors of different styles and sizes, each picture being full page size. There is also much information on the subject of air compressors and the uses of compressed air, together with tables. What adds to the completeness of the catalogue is the handsomely embossed cover printed in black and silver.

A neat combined calendar and stamp holder with oil paper is issued by the Sherwood Manufacturing Co., Buffalo, N. Y., and is sent out to customers of the company. It is bound in a celluloid cover and is printed in the form of a letter which has been mailed. It is a very excellent souvenir of the company's exhibit at the Pan-American Exposition.

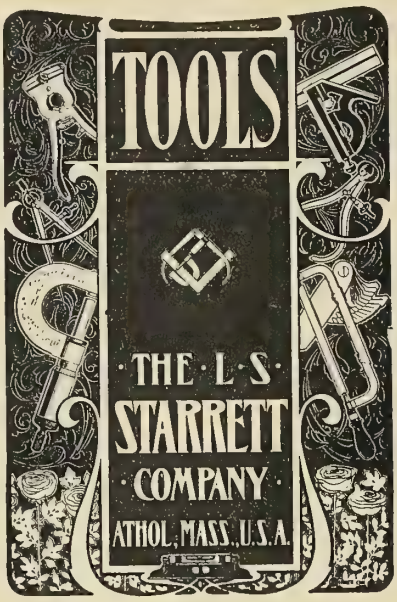
The motor starters manufactured by the Ward Leonard Electric Co., Bronxville, N. Y., have special catalogue No. 190,111 devoted to them. The descriptive matter is very complete and the illustrating is ample to cover the subject fully. There is also a table giving much information regarding the starters and other electrical specialties manufactured by this company.

The milling machines exhibited by the Becker-Brainard Milling Machine Co., Hyde Park, Mass., are referred to in a very neat booklet which is distributed at the Pan-American Exposition, copies of which can be had upon application to the company. The booklet is printed in two colors and contains a number of illustrations of machines. This exhibit is in class 44 of Machinery Hall.

Tool racks, lathe pans, shelving and other machine shop furniture in iron and steel are fully illustrated and described in a catalogue now ready for distribution by the New Britain Machine Co., New Britain, Conn. The illustrations show the styles of the different specialties and each illustration is accompanied by a table giving sizes, weights, prices, etc. This catalogue will be of much interest to any one who had to do with machine or repair shops.

Alley & MacLellan, Glasgow, Scotland, are sending out to their friends a neatly engraved map of Glasgow, All around the margin are large pictures of the different specialties of this company. These include steam engines for direct connected electric work, feed water filters, hoisting engines, etc., together with pictures of several different styles of vessels which this company has built. Accompanying the map is a list of places of interest in Glasgow. We infer that copies of this map will be sent to all the readers of MARINE ENGINEERING who write and refer to this magazine.

Facts About Floating Docks is the title to a 52-page catalogue very handsomely printed and well illustrated issued by Clark & Standfield, whose American address is 808 Seventeenth street, N. W. Washington, D. C. The London address of this firm is 11 Victoria street, London, S. W., England. The subject of floating docks is very carefully covered historically, and much information is given of a practical nature, such as any engineer or shipbuilder would want to know. Among the illustrations are the best known docks in various parts of the world, including the large one which the Maryland Steel Company is building for the United States Government. We infer that any shipbuilder or engineer asking for a copy of the catalogue can have one without charge.



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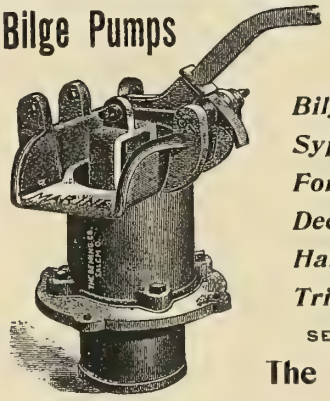

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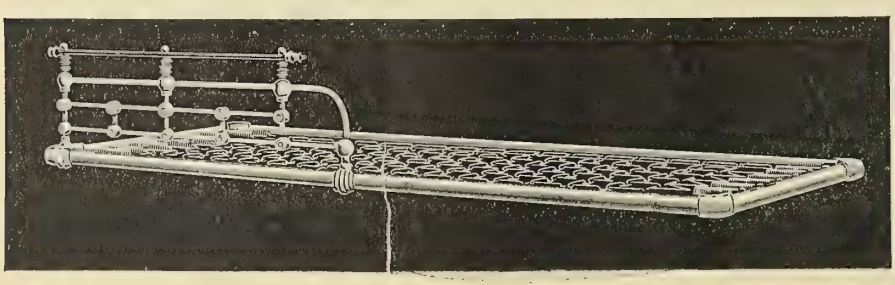

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Thirty Days After is the title to an extremely neat and well printed folder issued by the B. F. Sturtevant Co., Jamaica Plain, Mass., containing a number of illustrations of this company's plant immediately following the fire, and showing in other pictures, the situation thirty days after. It tells graphically the business push which controls this company.

INTERNATIONAL SPRINKLERS. — The International Sprinkler Co., 517 Arch street, Philadelphia, Pa., is continuing in the good work of fire protection on an ever increasing scale. It has taken in the neighborhood of thirty contracts for sprinkler installations in the past three months. The excellence of this company's devices, engineering and contracting work is becoming more and more widely known, and they are beginning to reap the benefit of their high standard of business methods. The company has now begun paving the way for securing its proportion of the business throughout New England through the Rhode Island Engineering & Supply Co., Providence, R. I.

BUSINESS NOTES.

FREE SAMPLE OF METAL POLISH.—The New England Agency for the Solarine metal polish is the Eagle Oil & Supply Co., 104 Broad street, Boston, Mass., which is one of the largest dealers in New England in engineers' supplies of all kinds. In writing regarding this polish, the company states, "we do not keep it, we sell it. Since the spring has opened we have send thousands of gallons of it to the water front. Engineers report that it is the quickest working polish on the market." A sample will be sent upon request.

ASBESTO-FIRE FELT COVERING.—The St. Regis Paper Co., which has just established a large plant at Watertown, N. Y., has placed an order with the H. W. Johns Mfg. Co., 100 William street, New York, for covering all of the new work with asbestos fire felt covering. Another important order just received by the Johns Company is covering for the new boilers installed on several of the steamers of the Iron Steamboat Co., of New York. In this work asbestocel sheets and asbestos cement were used. The Johns Company has just issued a pamphlet regarding its asbesto specialties, and any one interested in the subject can have a copy by writing for it.

NEW YORK BLOWERS.—Although it is only about a year ago that the New York Blower Co., Bucyrus, Ohio, was organized, the company has met with unusual success in selling its blowers. The business was first started in buildings at Louisville, Ohio, which were supposed to be entirely adequate for the business, but within six months the plant was found too small, and rather than double that plant, the entire business was removed to Bucyrus, where a convenient and model factory was installed. The company has completed the erection of new buildings and has entirely abandoned the Louisville plant. This company makes a special line of blowers, ventilators, etc., designed for marine work. A copy of the new catalogue will be sent to all inquiries.

CORRESPONDENCE INSTRUCTION. — The American School of Correspondence, Boston, Mass., reports a steady growth in its various departments now that education by this system has become so general. This school calls attention to the fact that the leading universities have introduced the system. Cornell University, for instance, is reported to have 15,000 students by means of correspondence in its School of Agriculture. The American School of Correspondence limits its work to technical fields and in the marine department has a series of text books, written in a plain, readable manner free from technical terms and details. Special advantage is claimed for this course, because of its being conducted by engineering experts, trained not only in the special lines of engineering but also as teachers.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

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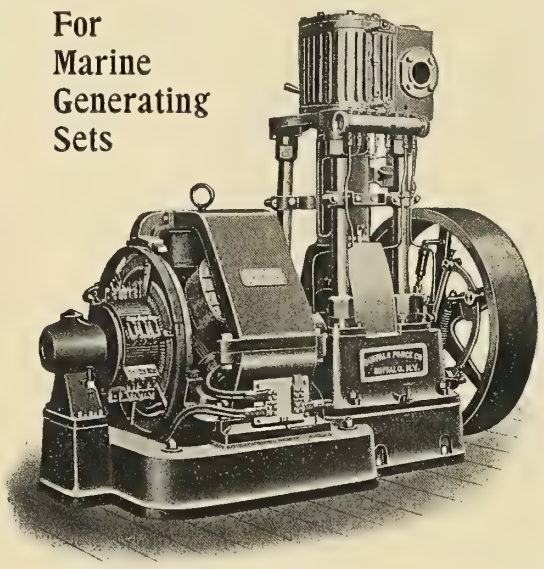

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"The Paint Question,"
"Paints in Architecture,"
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STEAM HAMMERS.—The Chambersburg Engineering Co., Chambersburg, Pa., calls special attention to its line of steam hammers which are built in all sizes from 600 lb. to over 10 tons. This company has already furnished hammers for many engineering and forging establishments.

LITTLE GIANT PNEUMATIC TOOLS.—The Standard Pneumatic Tool Co., Marquette Building, Chicago, Ill., had a fine exhibit of Little Giant pneumatic tools at the Master Mechanics' and Master Car Builders' Conventions in Saratoga last month. These tools are equally well adapted to marine work, and are now used extensively in the leading ship and engine building establishments throughout the country.

NEPTUNE ANTI-FOULING COMPOUND.—The Engel & Fagerstein Chemical Co., 1702 Wabash avenue, Chicago, Ill., has perfected a chemical preparation which is claimed to have an electrolytic property of converting the insoluble compounds of the elements into soluble compounds, thus preventing scale formation in Boilers. This preparation which is appropriately named the "Neptune" Anti-Fouling Compound neutralizes the galvanic and selective action of the scale-forming matter in the water, also preventing any corrosive action. Good proof of the success of this compound is found in the fact that the North German Lloyd S. S. Co., after thorough tests which it has made for several months past, wrote its New York Agency, Oelrichs & Co., under date of April 22, 1901, as follows: "In reply to your valued favor of April 12, we would say that since July, 1900, we have gradually used on 17 different steamers the Anti-Fouling Compound for boilers with satisfactory results, and we intend to introduce this compound on all of our steamers, for which purposes, as you are aware, we have recently again ordered 5,000 kilograms." The Neptune Comopund is an odorless, almost colorless liquid, containing no acid or volatile matter. The company will be glad to furnish further information.

STEAM PLANT THERMOMETERS.—The Hohmann & Maurer Mfg. Co., Rochester, N. Y., makes a specialty of a fine grade of thermometers and pressure gages for use in connection with steam plants. These thermometers are especially adapted for indicating temperatures of the air as well as of feed water, gases in the stack, etc. A catalogue devoted especially to this branch of the company's business will be sent to inquirers upon request.

THE ST. JOHN GRATE BAR.—The St. John Grate Bar Co., Betz Building, Philadelphia, Pa., has introduced its grate bar on many of the best known war vessels and merchant vessels of the country. As an illustration of the service these bars have done, attention is called to the following letter received from the William Cramp & Son Ship & Engine Building Co.: "We have used your grate bars and bearers on seven vessels built by us for the United States Navy, for the cruiser *Kasagi* for the Imperial Japanese Navy, and for a great number of merchant vessels in the trans-Atlantic service. During the official trials of these vessels we were able to maintain a uniform steam pressure for the entire period, and at no time did we find it necessary to clean fires by hand, all the refuse being broken up and passed through the bars by shaking, thus avoiding the injurious consequences liable to ensue from keeping the furnace doors open too long. The work of the firemen is minimized, and the fires are kept in good condition for their entire length. When the ships returned to our yard and after the furnaces were all cleaned, a close examination was made, and all the bars were found to be in excellent condition. This we consider remarkable, as during the trials the pressure in the fire rooms averaged from 9-10 of an in. of water on some of the vessels to 2 1-4 in. on others. It is the best shaking grate bar we have ever seen, and we have had them made for the United States battleship *Alabama* now building at our yard, and intend to equip her with them."

TWO PRIZES

Of Fifteen and Ten Dollars Each.

Almost every engineer has had an experience of some kind with a breakdown of main engine, boilers, or other machinery, which required much skill in making repairs.

Information regarding such emergency repairs is of great interest to engineers, and in order to give opportunity for an exchange of such experiences, we offer two prizes.

FIRST PRIZE

Fifteen Dollars for the Best Story.

SECOND PRIZE

Ten Dollars for the Next Best Story.

All that we ask is that the facts be given as completely and fully as possible. We will write them up. These facts should be accompanied by sketches or drawings giving dimensions and other information. Pencil sketches will be satisfactory if made with a little care.

The prizes will be awarded having in view the completeness of the matter furnished and the clearness of the description and drawings. Further information, if desired, can be had upon inquiry.

MARINE ENGINEERING 309 BROADWAY NEW YORK.

AN AUTOMATIC MULTIPLIER.—The Automatic Multiplier Co., 218 La Salle street, Chicago, Ill., has introduced a multiplying machine which has been proved extremely successful to those who wish to figure in special lines. This machine differs from most other such machines, as it combines division and multiplication in one problem making it one of addition.

ENGINEERS' TEXT BOOKS.—The International Correspondence Schools, Box 1111, Scranton, Pa., issues a full line of text books designed for those seeking an education or further instruction in any line. Any man connected with marine work who seeks instruction in any branch can secure full information regarding these text books by sending for a copy of the circular which has recently been issued.

B. F. STURTEVANT COMPANY.—For some time before the fire in the plant of the B. F. Sturtevant Co., Jamaica Plain, Mass., it had almost become necessary to build a larger plant, nothwithstanding that there were already four acres of floor space. Temporary repairs have been made to the old building, and it is announced that the company has recently purchased a tract of land containing some fifteen or more acres at Hyde Park, Mass., and is preparing plans for doing some very extensive work. This site will be within convenient reach of Boston, and the shipping facilities will be of the very latest.

A PRESERVATIVE FOR METAL.—The great amount of metal used in vessel construction makes it especially important that the metal be protected against rust and corrosion. These always take place unless the metal is entirely protected from contact with the air and salt water. To do this properly, a paint of the highest grade only must be employed, and it must offer an impervious coating. The Protectus Co. is now offering to the public, at a reasonable cost, Protectus, which is claimed to be an absolute preservative for metal against rust and corrosion, also to be elastic, tenacious, impervious to moisture and unaffected by atmospheric gases, salt water, heat or cold. It does not contain linseed or fish oils or substitutes for them. It has covering and lasting qualities much greater than ordinary paint. It preserves wood as fully as metal, and in mechanical application differs in no essential particular from the application of paints in general use. It is made in colors. Further information regarding these and other claims can be had by addressing The Protectus Co., North American Building, Philadelphia, Pa.

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Diameter of Fan 13 inches.

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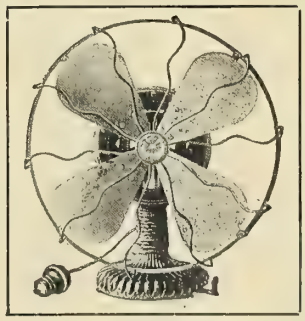

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616

WESTON ELECTRICAL INSTRUMENT CO.—The Weston Electrical Instrument Co. is now fully settled in its new and very complete plant at Waverly Park, Essex Co., N. J. All communications should hereafter be sent to this address. The nearest telegraph office at present is at Newark, but telegrams are promptly forwarded to the company from Newark by telephone without extra charge.

BESLY SPECIALTIES.—During the past few months, Chas. H. Besly & Co., 10 North Canal street, Chicago, Ill., have made several shipments of complete shop equipments to different cities and towns in Illinois, Indiana, Ohio, Wisconsin, Minnesota and elsewhere. One of the last orders recently received was for several hundred vises, cutters and other small tools for the U. S. Arsenal at Rock Island, Ill. A few copies still remain of this company's 300-page illustrated catalogue, and any one sending for a copy and mentioning MARINE ENGINEERING will receive it free.

EXHAUSTS FOR BLACKSMITH'S FORGES.—The Sterling Blower & Pipe Mfg. Co., Hartford, Conn., has met with much success in its system for removing smoke and gases from blacksmith's forges as well as for the blowing of fires. The company has already installed many such systems and has made a specialty of it. It is prepared to submit plans for any kind of conditions for shipyards or for engineering establishments.

CHICAGO PNEUMATIC TOOLS.—Two special representatives of the Emperor of Germany made a flying trip to Chicago last month in their journey to inspect the shipyards of the country especially to observe their equipment. They made a special investigation into the many types of pneumatic tools manufactured by the Chicago Pneumatic Tool Co., Monadnock Block, Chicago, Ill. The various lines of pneumatic tools were shown in full operation at the Chicago shipyard and their many uses were fully explained.

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Stubs' or Birmingham Gauge
"BENEDICT-NICKEL"
CONDENSER
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25% less
than —
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BOSTON, 172 High Street
V. WARING N.Y.

A Complimentary Letter.—The A. A. Griffing Iron Company, Jersey City, N. J., recently received a most complimentary letter regarding the Bundy steam separators from Herbert S. Kelly, master mechanic and chief engineer at the Atlantic Tannery, Salem, Mass. In this letter Mr. Kelly says: "About two years ago I was confronted with the problem, throw away all the water from the condensers or get rid of the oil. I purchased Bundy separators to separate oil from exhaust steam, and they remove the oil so that the condensed steam in the form of water can be used again in the boilers. The 8 in. separator is on a 250 H. P. engine and the 6 in. on a 100 H. P. and they are both giving excellent satisfaction."

Cork Tiling on Yacht Constitution.—Throughout the construction of the yacht *Constitution* the combination of strength and lightness was always kept in view, and when the question of the deck came up, it was decided to make this of 1-8 in. steel plates, bolted to suitable framing and sheathed with a material that would be light, and at the same time afford a firm foot hold. After examining the various materials possible, Mr. Herreshoff decided that the Nonpareil Cork Tiling, manufactured by the Nonpareil Cork Mfg. Co., Bridgeport, Mass., had the required qualities. This tiling, which is usually manufactured 1-2 in. thick, was made specially for him, 1-8 in. thick, weighing at that thickness only 4 ounces per sq. ft. The inequalities where the steel deck sheets are lapped were filled and smoothed with a mixture of fine granulated cork and a water proof cement. Then these thin cork tiles in sheets 36 by 9 in. were cemented to the steal deck with the same special waterproof cement. The tiling was weighted down until the cement had time to set, then the edges of sheets and wherever there was any slight inequalities, were gone over with fine sand paper, bringing the material to a smooth surface at all points. The tiling was left natural; no oil or other finish being used, as in the opinion of Mr. Herreshoff, it would detract from the firm footing, which the natural cork tiles offered. Although the tiling is only 1-8 in. thick, it has beneath it a foundation more or less springy, instead of a rigid backing, as would be the case on an ordinary floor, and there is every indication of its proving exceptionally durable and satisfactory for this class of work. The company's Philadelphia agent, Mr. John R. Livezey, laid certain floors on the Red Star Liner *Waesland* some months ago, which have proved so satisfactory that he has received a second contract for similar but more extensive work on the *Rhynland* of the same line, which work was completed in April, and is also very satisfactory. On these boats the tiling was laid in the steward's pantries and some of the stairways. It has lessened the breaking of dishes and prevented slipping to a very great extent. The company has also just completed laying cork tiling in various rooms and passage ways on the Boston Tow Boat Co.'s steamer *Lyra*, recently built at Sparrows Point.

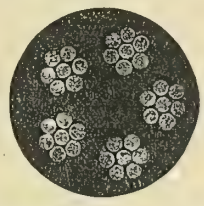
Sails for the Independence.—The yacht *Independence*, which has just been launched at Boston to race for the America cup, has been fitted with sails made by Wilson & Silsby, Rowes Wharf, Boston, Mass. The press despatch in referring to the big racing spinnaker for the yacht states that this sail will be made of material composed of silk and Sea Island cotton, and although it only weighs 4 oz. to the sq. yd. it is as strong as 8 oz. duck. Mr. Wilson is quoted as stating that the spinnaker will weigh about 250 lb., and will contain about 1,000 sq. yds. A sail of this material has been ordered for the *Rainbow* from this firm by Cornelius Vanderbilt.

Vapor Launches.—Considering all things, gasoline is probably superior to all other motive powers as a means of propelling pleasure launches. The *National Commercial Advisor* published recently an article setting forth the merits of vapor launches and commenting upon the improvements that have been made during the past five years. This article stated: "As a result of the publication of our article we have received a number of communications from interested readers asking us to refer them to the firms which in our opinion, built the best vapor launches. In order to reply intelligently, we have given the matter a very thorough investigation, during the course of which we have endeavored to obtain a great deal of expert opinion. We can say, without the slightest hesitancy, that the result more than justifies us in recommending among others the vapor launches built by the John Stuart Company, of Wollaston, Mass. These launches are in every way equal to anything we know of in the launch line. They are noiseless, simple in construction, easy of operation, and no government license is required. This company at the present time is very busy on a lot of launches, and is putting in the cabin work in the larger ones. It also is building a lot of tenders of all kinds; power tenders, etc. Catalogues will be furnished upon application.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

WESTON STANDARD PORTABLE DIRECT-READING

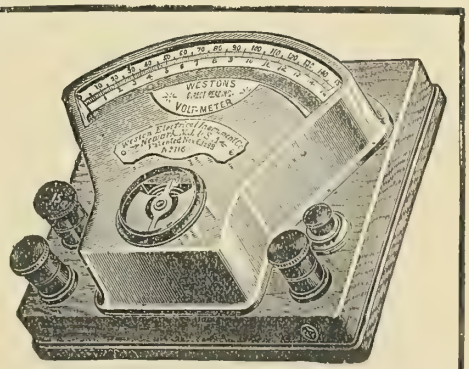
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

Waverly Park, Essex County, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

IMPORTANT DECISION.—We are informed by the Gold Car Heating Co., Frankfort & Cliff streets, New York, that it has won an important patent suit in Canada where the Court of Appeals has decided that the Gold steam hose coupling does not infringe on the Sewall patents.

U. S. COTTON DUCK CORPORATION.—A consolidation was announced last month of all of the cotton duck manufacturers in the country into the U. S. Cotton Duck Corporation with head offices at Baltimore, Md. The company has an authorized capital of $50,000,000 and has secured the ownership of practically all of the cotton duck mills in the country. Richard Crowell, of Baltimore, is president, and J. Spencer Turner, of New York, one of the vice-presidents.

THE PARAGON BOILER.—A Paragon boiler has just been installed on the steamer *Acme*. This boiler is 6 ft. wide, 10 ft. long, has water bridge walls and split combustion chamber. As soon as the boiler was installed, this steamer made a run with a tow of consorts from Troy to New York city, and we are informed by Capt. M. De Puy, 19 South street, New York, inventor of the boiler, that only 2 1-4 tons of egg coal were used in this trip of 157 miles.

THE L. S. STARRETT CO.—Last month the L. S. Starrett Co., Athol, Mass., surprised its 280 employees by voluntary offering nine hours' work for ten hours' pay. This announcement was made by means of a circular which was given to each employee one evening as he passed out of the factory. The circular stated that this was done not because of any "demand" from the employees, as none had been made, but because the company believed it would be beneficial both to the men and to the company to make this change. A local paper gives an interesting sketch of this business from which the following is taken: "The business of the L. S. Starrett Co. was started in 1880 by Mr. L. S. Starrett, who hired a room in which he made only the combination square, with which his name has become associated. He added more and more tools to his list. The factory was soon too small, and he added to it, and in 1894 the present factory was built. The floor space occupied by the company is some 60,000 sq. ft., making, without doubt, one of the largest plants devoted exclusively to the making of small mechanical tools. In going through the works one is impressed by the cleanliness of the premises as well as the abundance of light. The entire plant is equipped with electric lights, automatic fire extinguishers, and every up-to-date machine and appliance imaginable for the cheap and accurate manufacture of the goods. The growth of the business can be as easily seen from the inspection of the various issues of the company's catalogues as in any other way. The first 'catalogue' consisted of one sheet, and the combination square was the only tool shown. The present catalogue is a book of 112 pages, and 200,000 of them were printed last year. It is hard to state accurately just how many different tools are made, as there are so many which are simply varieties of some particular tool, and not really distinct tools in themselves. Steel rules form an important branch of manufacture and are made in a great variety of styles, in both English and metric graduations. A large number of different styles of squares are made and micrometer gages of over thirty different styles. Between 175 and 200 different styles and sizes of calipers and dividers are made. Other articles are bevels, scratch gages, screw pitch gages, cut nippers, depth gages, hack saw frames, hack saws, steel clamps, speed indicators, surface gages, levels, steel tapes, plumb bobs, and a variety of other unique and popular instruments of precision used by machinists, wood workers and draughtsmen. On January 1, 1900, the business was incorporated with L. S. Starrett, president and treasurer; F. A. Ball, vice-president; F. E. Wing, clerk."

STANDARD SEAMLESS TUBE CO.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

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267 So. 4th Street, Philadelphia
Western Union Building, Chicago
420 California St., San Francisco

Foreign Office—Dock House, Billiter Street, London, E. C., England

TECHNICAL TERMS ILLUSTRATED.

A Twelve Inch Projector.

A Special Marine Electric Plant.—The E. G. Bernard Company, Troy, N. Y., has just finished for the United States Light House Board, two special Marine outfits for Light House Vessel No. 72. The plants are duplicates, one running for one week, the other the following week, and so alternating. The two sets are necessary, due to the fact that there must be no failures. Very often on account of storms it is impossible to relieve these vessels for two to three weeks at a time. The generators not only supply all necessary lighting for the vessel, but also operate the mast-head lights, known as the "Flash Lights." These consist of six 100 C. P. lamps, having a special characteristic—that of the above is a flash lasting 12 seconds with a three minute darkness—making four flashes per minute. This flash is operated by means of a mechanical device, consisting of a 3 disk commutator—ring No. 1 continuous in its periphery, rings 2 and 3 are divided in such a manner that the length of the insulated rings determines the length of the flash. Bearing on these disks are 3 copper brushes, secured in quick break spring holders. The brush bearing on disk No. 1 is connected to the dynamo lead, brush No. 2 to the mast-head lights, brush No. 3 to a resistance frame. The arrangement of the disks is such that the mast-head lights and resistance alternate in perfect time, thereby removing all possibility of fluctuation of voltage, due to sudden changes of load, which by this means cannot exist, as the voltage of the resistance frame is equal to that of the lamps. The commutator is positive in its action, having a bronze worn gear upon its shaft, meshing into a worm stud screwed into the end of armature shaft, which is coupled to engine shaft by a rigid coupling. The speed of this set is 550 r. p. m. Its capacity 8 K.W. at 100 volts. Its floor space compact. The construction is massive and substantial throughout. The bearings, made of Lumen metal, are removable.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

EXPERIENCED DRAUGHTSMAN WANTED.

Mechanical draughtsman wanted who has been experienced in boat and engine work. Racine Boat Mfg. Co., Racine, Wis.

SALESMEN WANTED.

Salesmen are wanted who can sell Steam Packing and Lubricators. State experience and salary expected. P. O. Box 111, Philadelphia, Pa.

WORKING DRAWINGS OF ENGINES WANTED.

Complete working drawings of simple, compound and triple expansion engines suitable for tugs, yachts and light draught passenger vessels wanted. Reply with full detail to WORKING DRAWINGS, care Marine Engineering.

FOREMAN WANTED.

Foreman for steel construction shop is wanted, one who is a first-class fitter and understands boat construction thoroughly, and the use of modern tools as applied to yachts from 30 to 150 ft. Must be competent to handle men and work himself when necessary. A good place for an experienced hustler. Racine Boat Mfg. Co., Racine, Wis.

ENGINEERING TAUGHT—

"Hawkins' Educational Works"—practical books for practical men. Sold on monthly payments. 6 volumes in set, delivered complete. Highly approved and standard. Send for description of books and terms.

THEO. AUDEL & CO., Publishers,
63 FIFTH AVENUE, NEW YORK CITY.

WATERPROOF GLUE.

Specially adapted for all Marine Woodwork.

CASEIN COMPANY OF AMERICA,

DEPARTMENT F.

74 John Street, New York.

Bordo Valve Company.—Owing to the great increase in its business and the branching out more extensively into other lines of steam specialties, the Bordo Valve Company has removed its main offices and works to Coatesville, Pa. The company has built and equipped a fine new plant and will carry on business hereafter on a much more extensive scale than heretofore. Particular attention will be given to the Bordo plug valve and swing joint.

Exposition Information Bureau.—The International Correspondence Schools, Box 1111, Scranton, Pa., have established an information bureau at their Buffalo office in Ellicott Square Building. Arrangements have been made to secure accommodations both at hotels and with private families during the Exposition. Students who are already connected with the school, or any of our readers who are anxious for information previous to making a trip to Buffalo, can secure information at this Bureau. The bureau states that no rooms can be secured at less than one dollar per night for each person and all persons wishing rooms reserved must forward remittance. The services of the bureau are given free of charge.

Busy Shipyard.—The Townsend & Downey Shipbuilding & Repair Co., Shooters Island, N. Y., has a large amount of work on hand, including the following: Steel Schooner Yacht, 144 ft. on deck, for Robert E. Tod. Steel Schooner Yacht, 99 ft. on deck, for Fred F. Brewster. Steel Schooner Yacht, 99 ft. on dack, for Chas. Smithers. Wood Sloop Yacht, 33 ft. on deck, for John E. Beggs. Wood Auxiliary Yawl, 39 ft. on deck, for E. A. Fairchild. Wood Raceabout, 32 ft. on deck, for H. C. Tinker. Wood Power Launch, 55 ft. on deck, for J. H. Leavitt. Wood Power Launch, 60 ft. on deck, for International Gas Engine Company. Wood Sloop Yacht, W. D. Guthrie. Wood Auxiliary Schooner, F. L. Sheppard. Wood Ferryboat, for New York & College Point Ferry Co. Composite Steamer, for United States Coast & Geodetic Survey.

The Peerless Spiral Piston and Valve Rod Packing

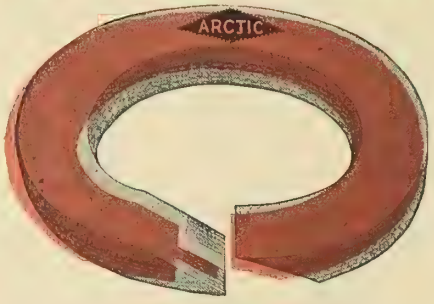
It will hold 400 lbs. of steam

Once tried always used

Will run twelve months in high speed engines

Arctic Packing

To be used exclusively for packing Ammonia Pumps



This packing is made in several hundred sizes

This packing is specially constructed for ice machine service, of layers of rubber and plies of duck which are so arranged and laid as to best resist the actions of ammonia, cold and heat.

The duck is a specially made duck, frictioned with an entirely new compound heretofore unknown to the rubber trade, and the core and back is of the celebrated Rainbow Packing compound, which is specially adapted to resist ammonia, cold and heat.

This packing is constructed on a strictly scientific basis, and the results obtained thus far have demonstrated fully its value for ammonia packing.

This packing is made in several hundred sizes. The rings may be slipped onto the rod very readily.

The usual rule is to be observed in giving measurements, the depth and width of stuffing box and size of piston rod, in order to get the size desired.

Sole Manufacturers of the

Celebrated Rainbow, Eclipse Sectional Rainbow Gasket, Hercules Combination and Honest John Packings.

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16 WARREN STREET, NEW YORK.

16-24 Woodward Ave., Detroit, Mich. 202-210 South Water St., Chicago, Ill. 17-23 Beale St. and 18-24 Main St., San Francisco, Cal.

These Goods Can be Obtained at All First-Class Dealers.

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" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

The ice and refrigerating machines manufactured by the Cochran Co., Lorain, Ohio, are fully described in a pocket size booklet, copies of which can be had upon application. This booklet gives some facts about the usefulness, principles and economy of these machines, and refers especially to the carbonic anhydride system. As these machines are very compact and are designed especially for marine work many of our readers will want to send for a copy of this book.

The Submerged Electric Motor Co., Menomonee, Wis., is distributing a very neatly printed catalogue describing the portable motors which this company manufactures. The motor can be attached to any boat and the storage battery, as told in the catalogue, is easily replenished. The catalogue is printed in two colors with very neat effect and the motor is illustrated with considerable completeness, showing its application.

The catalogue of steam specialties which Jenkins Brothers, 71 John street, New York, is distributing at the Pan-American Exposition comprises 74 pages, and copies can be had by application direct to the company by those of our readers who have not already been to the Exposition. Among the specialties fully illustrated and described are valves of all kinds, with tables of sizes, etc., devoted especially to this subject. They include check, swing, angle, by pass, blow off, and in short all kinds of valves, together with water gages, gage cocks, injectors, etc. The catalogue is very complete and is neatly bound and printed.

Special Dynamos, Motors and Generating Sets is the title of Bulletin No. 140 just issued by the C. & C. Electric Co., 143 Liberty street, New York. Like all of the other bulletins of this company it is of the standard size and fitted for binding into durable binders. This bulletin comprises twenty-four pages and contains a number of illustrations. These include a motor coupled to a blower, a sectional drawing showing the construction of the motor, a portable motor for testing purposes and direct connected electric plants for marine uses coupled to Forbes, Case and other engines. Copies of the catalogue can be had upon application to the company.

The course of study for marine engineers and their assistants which has been established for some time as a part of the International Correspondence Schools, Box 1111, Scranton, Pa., is fully described in a folder which is now being distributed. This folder gives full information regarding the course. Considerable attention is given to the general scope of the school, and also to the many advantages. The text books used in the marine course are fully described, showing the fulness of the course. Letters are given from men who have studied in this course and have secured prompt advancement. What adds to the completeness of the folder is the synopsis of the studies covered in this course. Any engineer who contemplates studying will find this folder of much use.

Fire Hose, Rubber Belting and Rubber Covered Rollers are the titles of three exceptionally complete and handsomely printed catalogues which are now being distributed by the Boston Belting Co., 256 Devonshire street, Boston, Mass. The catalogues are of the same size, 6 by 9 inches. The fire hose catalogue comprises thirty-two pages, which are printed in two colors and fully illustrated, there being an average of considerably more than an illustration to a page. The illustrations are fine wood cuts and descriptive matter accompanies each engraving. There are price lists and tables of sizes together with much other information, including the many attachments which are used in connection with fire hose. The catalogue devoted to rubber covered rollers comprises sixteen pages printed in two colors and is handsomely illustrated with wood cuts. The rubber belting catalogue comprises forty-four pages and is of the same quality typographically as the other two catalogues. It contains much information regarding belting and its uses.

The Underwriters' fire extinguisher has a very comprehensive booklet devoted to it issued by A. C. Rowe, 280 Broadway, New York. This extinguisher is of the portable type.

The Hasbrouck motor manufactured by the Hasbrouck Motor Co., Piermont, N. Y., is quite fully described in a folder which is now ready for distribution. The different styles and sizes of motors are fully described, and there is quite a little information regarding the sparking device.

The new pattern milling machines of the Cincinnati Milling Machine Co., Cincinnati, Ohio, are fully described in a catalogue which this company has just issued. These machines are on exhibition at the Pan-American Exposition. All the improved features of these machines are emphasized in this catalogue. There are several full-page illustrations, and the accompanying reading matter makes the catalogue very complete.

Bulletin No. 206, issued by the Sprague Electric Co., 527 West Thirty-fourth street, New York is devoted to the Lundell motors. The bulletin comprises twenty-eight pages and is fully illustrated. There are several tables of sizes, capacities, etc., and a number of full page illustrations of motors of different types and sizes, together with several drawings showing the construction of these motors. Every electrician will find this bulletin one of much interest.

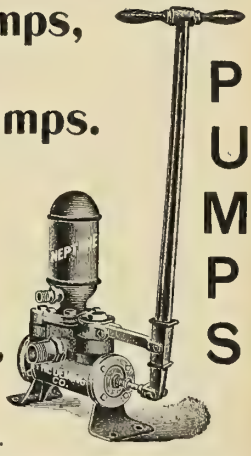
The steam specialties manufactured by the Wright Mfg. Co., 55 Woodbridge-avenue, Detroit, Mich., have a special catalogue devoted to them. The catalogue is neatly bound and the cover is printed in two colors. The text comprises eighteen pages, neatly printed, and the several specialties described are fully illustrated. Much attention is given to the Wright water column, which is manufactured for all uses, also to the Wright feed water controller. Several pages are also devoted to the Wright emergency steam trap, of which there are several illustrations. Another specialty which is completely described and illustrated is the Wright steam separator. Copies of this catalogue can be had upon application to the company. This company was formerly of Cleveland, O.

The steam specialties manufactured and sold by James L. Robertson & Sons, 218 Fulton street, New York, have a very complete catalogue of 62 pages devoted to them. The catalogue is neatly bound in a green cover and printed in red. The body of the catalogue is well illustrated and neatly printed. Among the many specialties to which attention is chiefly given are the Hine eliminator, safety water columns, feed water heaters and purifiers, hot water generators, coils and bends, pressure regulators, valves of several kinds, steam separators, steam traps, injectors, tube cleaners, grate bars, grease cups, Eureka and other packings, indicators, with much information regarding their use, etc. The catalogue is made very useful for reference by an index. Copies will undoubtedly be sent free to any of our readers upon request.

SEND FOR CATALOGUE NO. 16 L.

Ship's Deck Pumps, Bilge Pumps, Triplex Power Pumps.

We make
HAND AND POWER PUMPS
for all purposes.
Send for Catalogue.



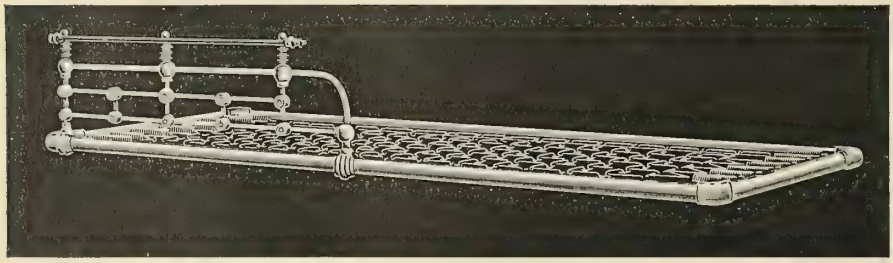
The Deming Company,
SALEM, OHIO.
HENION & HUBBELL,
Gen'l Western Agts, CHICAGO, ILL.

The Hartford Woven Wire Mattress Co.

P. O. BOX 363. *618 Capitol Ave., Hartford, Conn., U. S. A.*

MANUFACTURERS OF **Berths Complete,**
either metal or wood, with woven wire mattress or other spring mattress attached; or

Woven Wire or National Link Mattress only,
for berth bottoms for vessels, steamships, yachts, etc.



We manufacture the most approved articles for these uses, and will furnish anything to specification desired, of any dimensions, and of any irregular form required. Address for any information as above, and mention this journal.

Something

YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J., U. S. A.

SALESROOMS AT
68 Reade Street, New York City.
1020 Arch Street, Philadelphia, Pa.
304 Market Street, San Francisco, Cal.
London Office: 26 Victoria Street, Westminster.

The drawing and tracing papers manufactured by Elliott Electric Blue Print Co., 723 Liberty avenue, Pittsburg, Pa., are fully shown in a complete catalogue neatly bound, copies of which can be had upon application. The Elliott Company devotes itself exclusively to supplying specialties of all kinds such as draughtsmen would call for, and this catalogue is one of several very complete and comprehensive ones. A copy should be in every draughting room.

FRANK N. TANDY
General Marine Agent

31 STATE STREET, BOSTON, MASS.
TELEPHONE 3246 MAIN.
Special attention given to marine investments and promoting of ship building. Correspondence solicited.

Crane flanged fittings and gate valves manufactured by Crane Co., Chicago, Ill., are very fully described and illustrated in a 40-page catalogue which is now being distributed. This catalogue contains a large number of engravings illustrating fully the flanged fittings of all kinds and sizes, the bent pipes of different styles, and the straightaway valves. Every engineer will want a copy of this catalogue, which can be had upon application by referring to MARINE ENGINEERING.

The many types of engines manufactured by the Buffalo Forge Co., Buffalo, N. Y., are very fully illustrated and completely described in a seventy-page catalogue now ready for distribution. The cover is of a seal brown tint handsomely embossed and printed in blue and gold. Among the engines included are different sizes of horizontal side crank engines, simple or compound, either open frame or inclosed frame. There are also vertical engines, simple or compound, open frame or inclosed, also vertical, single or double acting inclosed engines, and the marine type of upright engine, simple or compound. The self oiling and other special features of the engine are fully described and as the illustrations are exceptionally fine the features of the engines are well shown.

The Little Giant pneumatic tools, manufactured by the Standard Pneumatic Tool Co., Marquette Building, Chicago, Ill., are very completely described in a catalogue 8 by 11 in. in size. The cover of this catalogue is dark green handsomely embossed. All of the tools manufactured by this company are very fully illustrated in the pages. What adds much to the value of the catalogue is a great number of pictures showing the manner in which the many tools are used. These pictures show these tools in use in marine work of all kinds, in boiler construction, hull construction and in shop work. Many illustrations are also given of the pneumatic tools as applied to wood work. Beside the chipping, calking and boring machines, there are riveters of all sizes, expanding tools, and in fact nearly all of the tools which would be used in shipbuilding work.

The Splicing of Wire Rope is the title of an exceptionally well printed catalogue of fifty or more pages now ready for distribution by John A. Roebling's Sons Co., Trenton, N. J. The catalogue is printed on heavy coated paper and bound in green cover with gold lettering. The subject of splicing ropes is very fully covered by complete descriptive matter, and there are probably two dozen full page illustrations showing the process in much detail by which wire ropes are spliced. The back part of the catalogue is devoted to illustrating and describing the different kinds of wire rope manufactured by this company. These include hoisting rope, haulage rope, galvanized wire rope, steel hawsers, etc. A number of riggers' tools are also shown, and there are several pages of illustrations of sockets, turnbuckles, and other specialties used in connection with wire rope. The catalogue is one of particular interest to those who have to do with the rigging of vessels.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

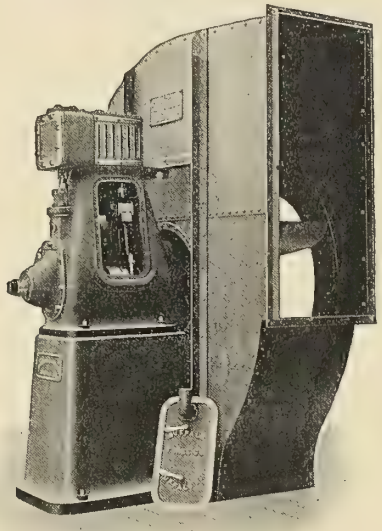
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO STEEL PLATE FANS

FOR FORCED COMBUSTION



BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

BUSINESS NOTES.

Cleveland Pneumatic Tools.—Owing to the increased demand for pneumatic tools, the Cleveland Pneumatic Tool Co., Cleveland, Ohio, has opened an office at 15 Cortlandt street, New York, with W. F. McGuire in charge. There is always on hand in this office a large supply of chipping, beading and caulking hammers, the Cleveland long stroke riveting hammers, piston, rotary and breast drills and other tools which this company manufactures.

Universal Dividers.—The L. S. Starrett Co., Athol, Mass., has found much demand for its universal dividers. Among the claims made for this device is that the adjustable scribe holder is reversible, and carries a fine tempered steel point or a pencil lead, held in a split socket by a knurled nut. When the holder is turned outward work can be laid close to corners. This is something that is very desirable. Full information regarding these dividers will be found in a circular just issued by the company.

Packing for the Navy.—When the United States Navy Department adopts an article for use on the ships of the navy, it means that the article adopted has qualified for exceptional requirements. This is what has happened to the Nubian steam packing, manufactured by the Voorhees Rubber Manufacturing Co., Jersey City, N. J. This company has received an order for sufficient packing to equip the cruiser *Montgomery* which has recently been undergoing repairs at the New York Navy Yard. The Brazilian cruiser which was in New York Bay a few weeks ago and which underwent repairs, also placed an order with the Voorhees company for a large amount of Nubian packing. This packing has already established an excellent reputation for marine use both in the merchant and in the Navy.

Additional Testimony:

"Zinc oxide appears to have a very high protective value as a pigment for use on iron, and stands better in this respect than white lead; also, zinc white paint, when pure, has a good body and covering power, and has the great advantage of being non-poisonous to the workers."

Harry Smith, F. C. I.

In *Journal of the Society of Chemical Industry*, page 1096, December 30, 1899.

Zinc White

Is the only white pigment suitable for use on metal surfaces. Therefore, when white or a tint is required, the only safe pigment for producing it is **Zinc White.** Constantly accumulating evidence proves that **Zinc White** is the element of durability in paints.

The New Jersey Zinc Co.

FREE:
Our Practical Pamphlets,
"The Paint Question,"
"Paints in Architecture,"
"House Paints: A Common-sense Talk About Them."

11 Broadway,

NEW YORK.

Berth Fittings.—The Hartford Woven Wire Mattress Co., Hartford, Conn., has just filled an order for sixty-six iron beds for the United States Navy Hospital at Norfolk, Va. This is only one branch of this company's business, as it makes a specialty of furnishing complete berth outfits and equipments for vessels of all kinds.

Steam Yacht Norman.—Last summer Commodore Frank Tilford, notwithstanding the fact that he had previously expended on his steam yacht *Norman* a large sum of money in alterations to the hull, machinery and a new boiler, was very much disappointed in the speed of his boat. At the conclusion of the yachting season he placed the *Norman* in the hands of the W. & A. Fletcher Co., of Hoboken, N. J., with directions to make such changes in her machinery as they thought best to insure greater speed, and he even went so far as to suggest an entirely new engine. The Fletcher company advised that the engine be rebuilt. In September a trial was had for the purpose of determining just what the *Norman* could do. The yacht was run several times over a measured course of about 3 5-8 miles, and, taking the mean of the two best runs, with and against the tide, the yacht only made 15 miles per hour, developing a maximum of 424 and an average of not over 390 indicated horse power. The engines were then fitted with new cylinders, valves and valve chest connections, and the air pumps and the blower were replaced. There was no change made in the boiler or in the propeller. The yacht on a preliminary run of six and a half hours under natural draft then made a speed of 16 3-4 miles per hour, a great improvement over the speed formally made under forced draft. On Tuesday, June 25, the yacht was tried for the first time under forced draft, and made on two runs of 20 miles with and against the tide a mean speed of 19 1-2 miles per hour, developing an average of 900 and a maximum of 1,000 I. H. P.

TWO PRIZES

Of Fifteen and Ten Dollars Each.

Almost every engineer has had an experience of some kind with a breakdown of main engine, boilers, or other machinery, which required much skill in making repairs.

Information regarding such emergency repairs is of great interest to engineers, and in order to give opportunity for an exchange of such experiences, we offer two prizes.

FIRST PRIZE

Fifteen Dollars for the Best Story.

SECOND PRIZE

Ten Dollars for the Next Best Story.

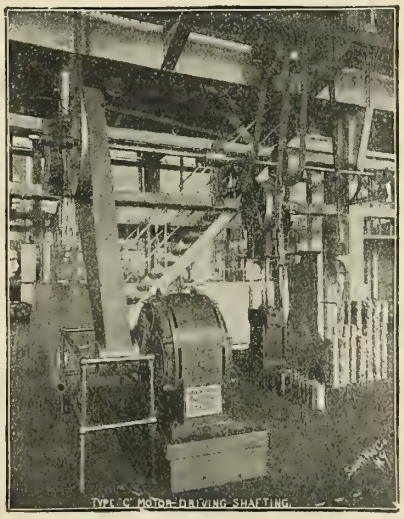
All that we ask is that the facts be given as completely and fully as possible. We will write them up. These facts should be accompanied by sketches or drawings giving dimensions and other information. Pencil sketches will be satisfactory if made with a little care.

The prizes will be awarded having in view the completeness of the matter furnished and the clearness of the description and drawings. Further information, if desired, can be had upon inquiry.

MARINE ENGINEERING 309 BROADWAY NEW YORK.

ASBESTOS PACKING.—The Bestosking Packing & Supply Co., 170 Summer street, Boston, Mass., has secured many orders for its asbestos packing. This packing is designed to fulfil the requirements of a first-class packing for high speed work.

TRACING PAPER.—The Elliott Electric Blue Print Co., Pittsburg, Pa., which carries a full line of everything useful in the drafting room, always has a large stock of tracing papers on hand of various grades. These grades are as follows: "Iron City" detail tracing paper is of buff tint, unprepared, and fairly transparent. A cheap paper suitable for pencil drawings which are to be mailed. Carried in 40 and 48 inch widths. "Teutonia" detail tracing paper is of buff tint, unprepared, and very transparent. Especially suitable for pencil tracings. "Cresson" detail tracing paper is an unprepared white paper, transparent and of good strength, and is very low in price. Especially suitable for pencil tracings. Furnished in 30, 36 or 42 inch widths. "Alder" tracing paper is a white paper of great strength, transparency and wearing qualities. "Natural Bond" tracing paper is a white glazed paper of good strength, transparency and suitable for either pencil or pen work. "Unglazed Natural" tracing paper is a white paper, 57 inches wide, suitable for either tracing or transferring. A great favorite. "French Bond and Thin and Medium" tracing papers are hard glazed papers suitable for drawings and tracings. Very transparent, tough and stands erasure well. These papers are heavy sellers. Can be blue printed. "Royal" tracing papers are high grade Belgian papers, glazed and very transparent. They are carried in thin, medium and heavy weights and are highly recommended. "Othello" tracing papers are strong glazed papers and very transparent. Suitable for pen or pencil. We carry these in thin and medium weights. "Standard" sketching and tracing papers are especially adapted to sketching, tracing, etc. To those who desire to make their details on strong, transparent white paper which bears erasure well, and takes pencil, ink and water color perfectly, these papers are especially recommended. They are also adapted to use in connection with the Moonstone, Hektograph Slates, etc. Blue prints can readily be made from drawings made on these papers. These are furnished in medium and heavy weights, 30 and 60 inches wide. "Liberty" sketching and tracing paper is 42 inches wide, otherwise being similar to the standard papers.



Westinghouse

INDUCTION MOTORS FOR OPERATING PORTABLE TOOLS, CRANES AND HOISTING ENGINES.

Unequalled for Mechanical Simplicity and Electrical Efficiency

Westinghouse Electric

& Mfg. Co., Pittsburgh, Pa.

All Principal Cities in U. S. and Canada

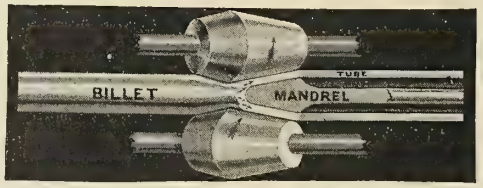
VESSELS CLASSED AND RATED.—The American Bureau of Shipping, 66 Beaver street, New York, has recently classed and rated in Record of American and Foreign Shipping the following vessels, all of American build: Screw, *Monterey;* screw, *Apache;* screw, *Idler;* screw, *Lyra;* ship, *Acme;* barge, *Sagua;* barge, *Kimberton;* and barkentine *Nineveh.*

PAN-AMERICAN INFORMATION.—The Buffalo Forge Co., Buffalo, N. Y., has established a bureau especially to answer all inquiries regarding the Pan-American Exposition. Data as to features at different periods, location, bookings and rates of hotels, rooms in private families, etc., will be constantly on hand. Mail will be forwarded or held according to instructions. Our readers are invited to visit the company at the General Exhibit, Machinery Hall, Section 12, where their booth may be utilized as headquarters while inside of the grounds.

ARE NEVER CLOSED.—The International Correspondence Schools, Box 1,111 Scranton, Pa., calls attention to the fact that instruction is given throughout the entire year. The vacations of the instructors are so arranged that there is no interruption in the work of the schools. This affords an opportunity to those students who have a dull season in the summer to take up a course of study by mail and to make use of what would otherwise be waste time.

LUNDELL MOTORS.—The present season has exceeded all previous records in the demand for fan motors of the Sprague Electric Co., 527 West Thirty-fourth street, New York, as it has all it can do to keep up with the orders for its Lundell fans, and has been especially busy because not only has there been a demand for fans, but for electrical apparatus of all kinds. The Lundell motors and split-pole generators are made in sizes up to 1,000 H. P. and 1,000 K. W., respectively.

Electrolyic action on Brass Tubing which was taken out and replaced by "Benedict-Nickel." —From a photograph.



Condenser Tubes

made from

"Benedict-Nickel"

resist **Corrosion** and the destructive effect of

Electrolysis:

"Benedict-Nickel" Tubing in perfect condition after 28 months' service. —From a photograph.

"Benedict-Nickel" Condenser Tubes are perfectly homogeneous and highly non-corrosive. They are rolled from solid cylindrical billets which contain absolutely no zinc nor any other weakening metal.

The illustration shows how "Benedict-Nickel" Condenser Tubes are made. The spiral formation given to the walls of the tubes increases their tensile strength 50% over brass, and makes them the toughest and strongest tubes manufactured.

Another advantage is that, owing to their extreme stiffness, they can be made of thinner gauge, and yet be stronger than the thicker brass or copper tubes of the same diameter. The economical feature will therefore be readily understood.

A treatise on "Electrolysis of Condenser Tubes" mailed upon request.

We are also among the largest manufacturers of Seamless Brass and Copper Tubing, and the ONLY manufacturers in the United States of this tubing rolled spirally from a solid billet. This is the process used in the manufacture of "Benedict-Nickel."

BENEDICT & BURNHAM MFG. CO.,

MILLS AND MAIN OFFICES, **WATERBURY, CONN.**

DEPOTS: **NEW YORK, 253 Broadway.** **BOSTON, 172 High Street.**

V. WARING, N.Y.

SAFETY STAYBOLT IRON.—The Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, has opened an office in Room 1425, Monadnock Block, Chicago, Ill., with John Napier Dyer as representative, and at 932 Guaranty Building, Minneapolis, Minn., with Thomas J. Noonan as agent. The company has recently increased its facilities for manufacturing hollow and solid staybolt iron. The prices of these staybolts are believed to be considerably lower than those offered by other manufacturers. Samples are sent upon request.

FREE SAMPLE OF POLISH.—The Eagle Oil & Supply Co., 104 Broad street, Boston, Mass., reports increasing sales of Solarine metal polish. This company is the New England agent for this polish, and it informs us that the June sales surpassed all other months since it has taken the agency for these goods, thus showing that a good polish is appreciated by those who use it. The company writes: "We have just received a duplicate order for 100 gallons of Solarine Metal Polish against the most severe competition. The order was secured because Solarine was proving to be the best of all its kind, the quickest and most lasting polish upon the market." Samples sent free upon request.

C. & C. ELECTRIC SETS.—In connection with its marine lighting sets, the C. & C. Electric Co., 145 Liberty street, New York, calls attention especially to the "T. B. 6" frame. This frame in its design, construction and capabilities differs but slightly from other frames. The principal difference is that this frame has four poles instead of eight, and consequently the normal speeds are higher in proportion to capacity. The "T. B. 6" frame is particularly light and compact, and it is unusually efficient and operates without injurious heating or sparking. Combined with a Forbes, a Case or other make of engine this frame goes to make up several sizes of excellent small generating sets of extreme lightness and compactness. The T. B. frame is made in two patterns, the Standard and the Special. The latter is built only to order at special prices.

STOW FLEXIBLE SHAFTS.—By the use of a multispeed portable motor which has recently been put on the market, the Stow Manufacturing Co., Binghamton, N. Y., has greatly extended the use of its flexible shafting. The motor has a wide range of speeds easily controlled at a maximum efficiency at all speeds. By means of an attachment used it is possible to regulate the speed to a revolution. In the speed controlling device there is nothing to get out of order, and there are no rheostats of any kind. The speed attachment is operated by simply turning a hand wheel. By using this motor in connection with flexible shafting the company is now enabled to cover a wide range of work, especially for use in shipyards and on board ship. Electricity is always at hand. This Stow outfit has all the flexibility of the pneumatic system and the special advantages of being electric. For drilling, reaming and for much other work which is necessary to do on board of a ship as in a shop this outfit fulfils many requirements. Full information regarding this device can be had from the manufacturer.

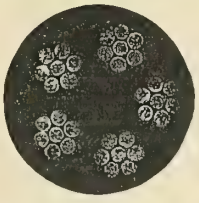
MARINE PHOTOGRAPHS.—Enrique Muller, 714 Monroe street, Brooklyn, N. Y., has made a specialty for many years of marine photographing, and especially of naval work. The quality of Mr. Muller's work has been well shown by the many samples of it which have appeared in MARINE ENGINEERING, such, for instance, as the pictures of the U. S. S. *Mayflower*, which were used in the July issue of MARINE ENGINEERING. Mr. Muller has negatives of most of the vessels in the United States Navy, together with photographs of navy yards, dry docks and many other subjects.

STURTEVANT ELECTRIC SETS.—In the new steamship *Lyra*, of the Boston Tow Boat Co., the installation of electric lights is remarkably complete, including even the holds, so that darkness may not interfere with loading and discharging cargo. The dynamo and engine—forming a compact generating unit—were designed and built by the B. F. Sturtevant Co., Boston, Mass. The plans of the Sturtevant Co. so far as perfected for its new plant at Hyde Park, Mass., contemplate an engine and electrical shop of gallery type 120 by 400 feet, two buildings each 80 by 400 feet and three stories high for blowers, heaters, forges, galvanized iron work, exhaust heads, etc., and a foundry 120 by 400 feet. In addition independent office, power and pattern storage buildings are planned for. Fireproof or slow burning construction will be the rule throughout and the fire risk reduced to an absolute minimum. The new plant will probably provide about eight acres of floor space, fully double that existing in the old plant at Jamaica Plain. Nearly one-third of this area will be devoted to the manufacture of engines, motors and generating sets. The recent growth of this department has been almost phenomenal and it is in this field—particularly in the application of Sturtevant motors to Sturtevant fans—that the most rapid growth is expected in the immediate future. The entire plant will be equipped with Sturtevant generating sets and motors for direct driving of line shafts and of large individual machines.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire.
The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

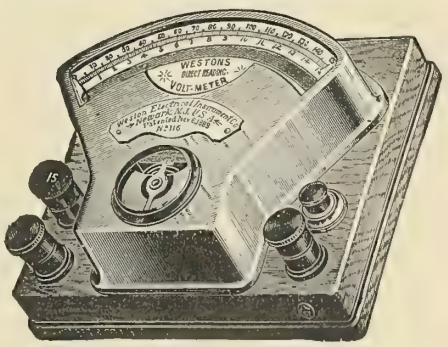
WESTON STANDARD PORTABLE DIRECT-READING

Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
Waverly Park, Essex County, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

LARGE CONTRACT.—The contract for covering at the United States Immigrant Station, Ellis Island, New York harbor, has been awarded to the H. W. Johns Manufacturing Co., 100 William street, New York city. This contract amounts to $6,666.66.

COMPASS FOR NIGHT WORK.—The Hohmann & Maurer Manufacturing Co., Rochester, N. Y., has introduced a portable compass designed especially for night use. Compasses of this construction have become extensively used in Great Britain, and are becoming very popular in this country, especially at sea, as there is no light to blow out or become useless.

CHANGE OF NAME.—The Montauk Multiphase Cable Co., 100 Broadway, New York, will be known hereafter as the Montauk Fire Detecting Wire Co. Mr. John D. Gould, president of the company, says: "This change of name is not on account of reorganization of the company, but has been made for the purpose of more fully conveying to the public the nature of our business. We have received so many communications which indicate that wrong conclusions have been drawn as to the product we manufacture, that it was deemed advisable by the stockholders to adopt the new corporate name."

A SEVERE TEST.—The following extract is taken from a letter received by the Smooth-On Manufacturing Co., Jersey City, N. J., by a user of its Smooth-On compound: "Upon looking over your advertisement it brought to mind a very successful experiment on my part of the use of your Smooth-On compound, the nature of which you probably have never known. I was at the time in the employ of the Virginia-Carolina Chemical Co. I had the Kehoe Iron Works here telegraph an order for twenty-five pounds. The experiment was this: In all fertilizer works they use what they call acid eggs, and the acid eats holes in them very rapidly (sulphuric acid). We had one that had been thrown away as no good on account of the holes and had ordered a new one, but it was delayed, and we were about to get into a hole and suffer quite a loss. I having used your compound on several occasions for sand holes and fractures, concluded I could patch the old eggs and save the company a few hundred dollars; so, after receiving the can I went to work and fixed the old egg, and it is running to-day under 60 pounds pressure. This experiment happened about five months ago. The new egg has been laid aside for future use. The head chemist here said it would never do; so did two other chemists. They showed me by tests that the acid would eat it up; so it did in the dry state; but after mixing it with water and putting it on in the usual manner and allowing the cement to metalize the acid had no effect upon it whatever. Some of the holes were as large as your finger, and clear through. Our chemist said he had seen all kinds of ways tried to stop holes in acid eggs, and that was the first time he had ever seen an egg used the second time. Yours truly, F. A. Lawyer, Chief Engineer, Savannah, Ga." The Smooth-On Cements will also withstand steam, water and fire. The following is another interesting account of a repair made with Smooth-On from James H. Cornell, Asbury, Park, N. J.: "I had a large piece out of a bend of a four-inch pipe, due to the water in the pipe having been frozen. After many inquiries, and being told that the expansion and contraction would prevent it being repaired, I came across a cement made by the Smooth-On Manufacturing Co., of Jersey City, called Smooth-On, which, being put on, oxidizes, and thus turning into iron becomes itself a part of the pipe. It was repaired last fall, and the fire has been kept up in the boiler and there is no sign of a leak. It was in my favor that the piece came out whole, the cement put over turned into iron." The company is distributing a catalogue explaining fully the different Smooth-On compounds, and all of our readers will want to send for a copy of it for reference.

STANDARD SEAMLESS TUBE CO.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

NATIONAL TUBE COMPANY, Selling Agents

SALES OFFICES

Havemeyer Building, New York
95 Milk Street, Boston
Conestoga Building, Pittsburg
267 So. 4th Street, Philadelphia
Western Union Building, Chicago
420 California St., San Francisco

Foreign Office—Dock House, Billiter Street, London, E. C., England

TECHNICAL TERMS ILLUSTRATED.

A Switchboard.

COAL FOR VESSELS.—Edward A. Willard & Co., 132 Front street, New York, have been connected for two years or more with the business of coaling vessels as American agents for James Burness & Sons, London, England, have now extended the business in this country, and have made arrangements to supply the coal of the Davis Coal & Coke Co. to steam vessels in almost any port.

A USEFUL MACHINE.—The Hickman-Melhorn Co., 200 Liberty avenue, Pittsburg, Pa., offers a most useful machine in its combination vise and pipe threading machine. Especial attention is called to the fact of its being light, durable, powerful and easy of operation. By use of the worm gear a minimum amount of friction and wear is secured, and a steady and powerful movement is obtained. It is thus possible to cut all sizes of pipe at a single cut. The machines can be used in confined places. A perfect thread can be cut in any position, without moving or bringing any strain on any point other than the one being operated on. The lead screw makes starting easy and causes less risk of breaking the dies, while the long bushings insure true line threads.

A NEW LAUNCH PROPELLER.—The Superior Gas Engine Co., West Superior, Wis., has put on the market a launch propeller, for which the following claims are made: No gears, levers, clutches or screws to get out of order or break. Hub is smooth and compact. No lumps, bumps or projections to impede rotation. Blades are interchangeable, independent and easily removed and replaced. Blades are built on center line, reversing power is thereby distributed to them with positive evenness, overcoming all tendency to bind or cause friction when in motion. The wheel can be so pitched by means of the operating lever as to work the boat at anything from full speed ahead to full speed astern, furnishing no power whatever when the lever is on center. Reversing lever can be placed at any desirable point in the boat.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

FORE AND AFT COMPOUND FOR SALE.

We have for sale for immediate delivery one 7x13x8 inch stroke fore and aft compound marine engine for sale. REEVES MACHINE CO., Trenton, N. J.

ENGINEERING TAUGHT—

"Hawkins' Educational Works"—practical books for practical men. Sold on monthly payments. 6 volumes in set, delivered complete. Highly approved and standard. Send for description of books and terms.

THEO. AUDEL & CO., Publishers,
63 FIFTH AVENUE, NEW YORK CITY.

WATERPROOF GLUE.

Specially adapted for all Marine Woodwork.

CASEIN COMPANY OF AMERICA,
DEPARTMENT F.
74 John Street, New York.

FOR A GOOD COPY OF

MARINE ENGINEERING

For August, = = 1898

we will extend a subscription 6 months.

For March, = = = 1898

we will extend a subscription 3 months.

For February, = 1898

we will extend a subscription 2 months.

MARINE ENGINEERING, 309 Broadway, N.Y.

BUFFALO GASOLINE MOTORS.—The motors manufactured by the Buffalo Gasoline Motor Co., Buffalo, N. Y., are designed for use in boats, vehicles and stationary purposes. A circular issued by the company shows its four cylinder 6 H. P. non-vibrating shifting spark vertical motor, occupying a space 12 by 20 in., 19 in. high; weight. 225 lb. The engine is water jacketed, and also has a water jacketed head, the latter being a special feature on four-cylinder engines. The engine being four cylinder, firing one after the other, gives a rotary motion with the least vibration.

FINE STUART LAUNCH.—The John Stuart Co., Wollaston, Mass., is building a 50-foot launch for a prominent member of the Massachusetts Hull Yacht Club. The frame and timbers are of oak, hard pine planking, copper fastened, riveted over burrs. Has main cabin 16 feet long, finished in mahogany. Sliding windows of the Stuart pattern. Two staterooms, containing four extension berths. Toilet lavatory and galley. Engine room aft with 20 H. P. double cylinder Stuart gasoline engine. Speed to be 12 miles an hour. Lighted by electricity. Carries 12-foot mahogany gig which weighs only 70 pounds. This last built by The Stuart Co. also.

Rainbow Packing

Makes Steam, Flange and Hot Water Joints Instantly

Thousands of Imitators.

No Equal.

Will Hold Highest Pressure.

Don't have to Use Wire and Cloth to Hold

RAINBOW

Can't Blow it Out.

THE COLOR OF RAINBOW PACKING IS RED

See that the Trade Mark (three rows of diamonds in black, connected) extends throughout the entire length of each yard or roll

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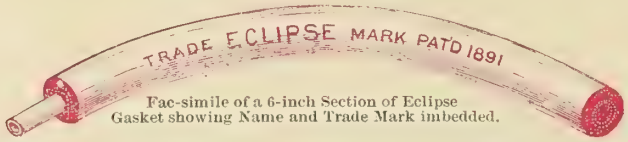
It is an undisputed fact that Rainbow Packing is the only Sheet or Flange Packing in the world that will carry in stock for months and years without hardening or cracking

THE ECLIPSE SECTIONAL RAINBOW GASKET

3/8 in.
1/2 in.
5/8 in.
} **For Hand Holes.**

3/4 in.
7/8 in.
1 in.
} **For Extra Large Joints.**



Fac-simile of a 6-inch Section of Eclipse Gasket showing Name and Trade Mark imbedded.

The Eclipse Gasket is red in color, and composed of the celebrated Rainbow Packing Compound. It will not harden under any degree of heat, or blow out under the highest pressure, and can be taken out and repeatedly replaced. Joints can be made in from three to five minutes.

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" 37, E. D. Lock, 1304 S. 19th St., Toledo, Ohio.
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" 48, Carl V. Hart, 425 Perry St., Sandusky, Ohio.
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" 92, Miles W. Gaffney, 309 Stark St., Saginaw, W. S., Mich.
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" 101, Thos. J. Hanlon 14 Ave. A, Atlantic City, Norfolk, Va.
" 102, Chas. La Bounty, Box 563, So. Haven, Mich.
" 103, C. H. Hall, Box 512, New Berne, N. C.
" 104, J. H. Blumer, Moss Point, Miss.

TRADE PUBLICATIONS.

The Falls Hollow Staybolt Co., Cuyhoga Falls, Ohio, issues a folder which describes this company's products. It refers to the hollow staybolts, which it is stated are rolled hollow by a recently improved process. Reference is also made to the solid staybolts. Copies of this folder are now ready for distribution.

The Westinghouse Companies' Publishing Department, Pittsburgh, Pa., issues a map of the Pan-American Exposition, giving the location of the buildings, and special list of the most important exhibits of the Westinghouse specialties. Anyone intending to visit the exposition will find it worth while to send for one.

The Man With the Shovel is the title to a booklet now being distributed by the Eagle Oil & Supply Co., 104 Broad street, Boston, Mass. It refers especially to the U. S. Standard boiler compound. In regard to the subject, a note on the first page of the catalogue states: "Do not think so much about what a compound is going to cost. Think more about what it is going to do." Every engineer will receive a copy of this catalogue upon applying for it.

The specialties for steam users such as steam separators, ejectors, releasing and reducing valves, steam traps, etc., manufactured by Watson & McDaniel Co., 146 North Seventh street, Philadelphia, Pa., have a catalogue devoted to them, which is now ready for distribution. The catalogue is of convenient size for filing, and each specialty is illustrated and fully described. Every engineer, whether in a shipyard or on board ship, will find a copy of this catalogue well worth sending for.

Scientific Facts and Other Valuable Information about Victor boiler rivets is the title to a 68-page catalogue now being distributed by the Champion Rivet Co., Cleveland, Ohio. The catalogue is neatly printed in two colors, and contains many illustrations of ships' engines, steel stacks, boilers of various types, rivets, etc. There are also many tables regarding sizes and strength and other matter concerning rivets of steel, nickel steel and other materials. The catalogue is one which will be of much use for reference to every ship and boiler builder.

The Deane power pumps, manufactured by the Deane Steam Pump Co., Holyoke, Mass., have a very handsome catalogue devoted to them that is known as catalogue No. 5. This catalogue is neatly bound in paper cover, and the text comprises seventy-two exceedingly well-printed and well-illustrated pages. The design and construction of the pumps is fully described and illustrated with fine engravings of the various types and sizes. There is an illustration on every other page throughout the catalogue. Copies are now ready for distribution.

Empire Air Tools have a very complete catalogue devoted to them which is now being distributed by the Empire Engine & Motor Co., Orangeburg, N. Y. These tools include wood and metal drills, reamers, chain hoists, hoisting engines, etc. The illustrations are large and show very well the design and manner of using the several tools. There are also a number of illustrations showing the manner in which the tools are used for various purposes. As pneumatic tools are very extensively used in ship and engine shops, many of our readers will find a copy of this catalogue well worth careful reading.

The Warwick chains, which are manufactured by the Newhall Chain, Forge & Iron Co., 26 Cortlandt street, New York, have a hanger about one yard long devoted to them, which the company is now distributing for hanging up in offices and other places. There are several pictures of the plant in which these anchor and other chains are made, and pictures of links which have undergone the severest strain in regular use. Complete information is given on the hanger regarding these anchor cables and other chains, and there is a table giving information regarding diameters, weights, etc., of dredge and hoisting chains.

The Hall marine gas engines and launches are described in a folder issued by Hall Bros., the Bourse, Philadelphia, Pa. Several illustrations give views of the engines from all sides, and the general style and special features are described in the text. There are also tables of sizes and other information.

Users of Mechanical Draft is the title to a booklet which is now being distributed by the B. F. Sturtevant Co., Jamaica Plain, Mass. There are thirty-three pages of names of yachts, steamships, naval vessels, manufactureres, etc., which use mechanical draft. Anyone interested in the subject or who contemplates introducing this draft will find this list of much value in forming an opinion, as it shows those who have already made use of it.

Insuring Patterns is the title of a very important paper which was read by Mr. Frederick Conlin, of Bethlehem, Pa., manager of the Bethlehem Foundry & Machine Works, at a recent meeting of the American Foundrymen's Association. The subject is such an important one that the manager of every engineering establishment and undoubtedly many other of our readers will find much to interest them in the paper, copies of which can probably be had by applying to Mr. Conlin.

The Sturtevant engine in its many types and styles is very fully illustrated and described in an exceedingly handsome catalogue of fifty pages now being distributed. The catalogue is bound in heavy green paper, printed in red and gold, and is known as No. 103. This is the fourth edition of this catalogue, so great has been the demand for it since it was first issued. Users of automatic engines for any purpose, particularly for direct connected work in electric lighting, will find the catalogue of much value. The illustrations are large and exceptionally well printed, and the electric plants are shown in great variety, from the smallest size up to the largest manufactured by this company. Copies can be had from the B. F. Sturtevant Co., Jamaica Plain, Mass.

Flexible shaft, manufactured by the Stow Mfg. Co., Binghamton, N. Y., is fully described in catalogue No. 9, which has just been issued. This catalogue consists of seventy-two pages. It gives a surprising amount of valuable information regarding the many uses for this shafting, such as boring and drilling of all kinds, sand papering, wood carving, metal polishing, cleaning of boiler flues, etc. As shown in the catalogue, the value of this shaft is much extended by using it in connection with the multispeed electric motor furnished by this company. Numerous illustrations show the application of the shaft for such purposes as drilling in boiler construction, in tube expanding, in the use of emery wheels, grinding, etc. Much detailed information is given regarding the multispeed motor. This catalogue is one which will be of much interest to anyone who has to do with mechanical work, either on board ship or in a shop of any kind.

Ship's Deck, Bilge, Triplex Power

PUMPS

We make
HAND AND POWER PUMPS
for all purposes.
Send for Catalogue.

The Deming Company,
SALEM, OHIO.
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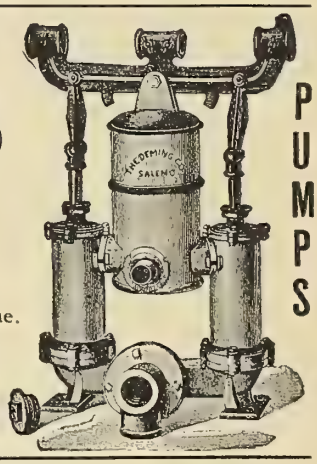

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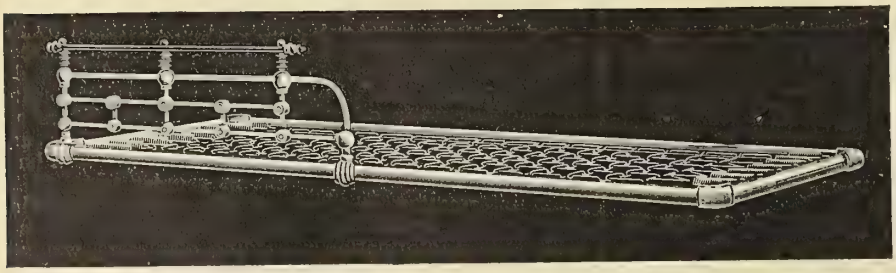
MANUFACTURERS OF **Berths Complete,**
either metal or wood, with woven wire mattress or other spring mattress attached; or

Woven Wire or National Link Mattress only,
for berth bottoms for vessels, steamships, yachts, etc.



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GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

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68 Reade Street, New York City.
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Combined Magnetic Braking and Electric Car Heating Apparatus is the title to the latest publication issued by the Westinghouse Air Brake Co., Pittsburgh, Pa. Like all the Westinghouse publications, it is a handsome specimen of the printing art. The special feature which will interest our readers is the electric heater, which is fully described and illustrated as applied to street-cars. These conditions are not unlike those obtained on a yacht or a vessel.

Buffalo Steel Pressure blowers which are manufactured by the Buffalo Forge Co., Buffalo, N. Y., are well illustrated and described in a pocket size catalogue now being distributed. A great many illustrations are used, showing the blowers operated by direct connected motors, also by belt motors, and belted to Buffalo engines. The complete descriptive matter together with tables of sizes and other information make a copy of this catalogue of much value to anyone who is interested in this subject.

The Buffalo Disc Wheels manufactured by the Buffalo Forge Co., Buffalo, N. Y., are handsomely illustrated and fully described in a pocket size catalogue which is now being distributed. There are many fine halftone engravings in the catalogue, and in addition to a full description of the wheels, tables of sizes, capacities, etc., much information is given regarding the manner of installing the wheels.

BUSINESS NOTES.

BELLS FOR MARINE USE.—G. C. Thornton, 3 East Fourteenth street, New York, is putting on the market a line of electric bells especially designed for use on vessels, launches and yachts. These bells are so made that they are not in any way affected by corrosion or other action of the elements. The bells can be put on deck in almost any position.

SCRAPING AND PACKING TOOLS.—The Eagle Oil and Supply Co., 104 Broad street, Boston, Mass., has the New England agency for the Mound tools, and carries in stock packing worms, hooks and scrapers of all sizes. These goods can be seen at the office, or circulars and prices can be had upon request. All tools are guaranteed. Those who write are requested to ask for premium list of twenty useful articles for engineers when writing.

MAKING SAILS MILDEW PROOF.—The Neptune Mildew and Waterproofing Co., 34 Wilson street, Jersey City, N. J., has been selling its mildew and waterproofing for many years, and has many testimonials regarding it. A letter from Geo. Lawley and Son, Corp, South Boston, Mass., states: "So far as we are aware your process of treating sails has given complete satisfaction to customers to whom we have furnished sails so prepared. We have no hesitation in recommending your process as the best we know of."

BOILER-FLUE PLUG.—The improved boiler-flue plugs manufactured by Reinhold Bettermann, Johnstown, Pa., have been in use for several years, and are now very extensively used for marine work as well as for stationary plants. The following is a sample of the letters which Mr. Bettermann is constantly receiving from engineers. This letter, from Lawrence Kost, says: "I wish to say a word of commendation of your improved flue plugs. One day recently I came to your office about 10.30 A. M., it being about twenty minutes walk from my place. I ordered a pair of your 2-inch plugs for a leaky flue in a boiler whose flues are five feet long. Your man arrived at my place at half-past eleven A. M. with the plugs. We raised the stack, took off the bonnet, run the rod through the leaky flue, attached the plugs, drew them tight, put the stack in place again and I learned that your man got back to your office by 12 o'clock noon, at which time I had a good head of steam on again. You made a great hit when you invented that flue plug."

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

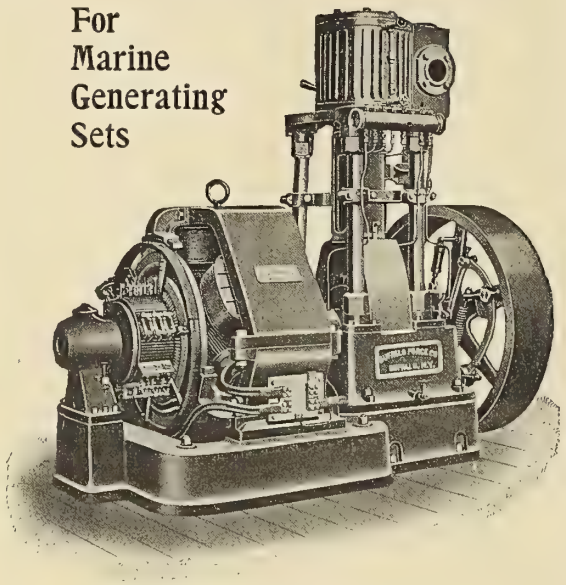
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

Buffalo Marine Engines

For Marine Generating Sets



Buffalo Forge Company,

BUFFALO, N. Y.

NEW YORK OFFICE, 39 Cortlandt Street

Try a Board

Paint one end of a board with a sky blue tint of zinc white and Prussian blue, match the other end with white lead and Prussian blue; hang it out and let the sun be umpire.

Zinc White

Is not only more economical, more beautiful and more durable than any other white pigment, but it also preserves tints.

FREE

Our Practical Pamphlets:
"The Paint Question"
"Paints in Architecture"
"House Paints: A Common Sense Talk about Them"

THE NEW JERSEY ZINC COMPANY
11 Broadway
New York

Nicholson File Co.—The Nicholson File Co., Providence, R. I., announces that it has purchased the file and rasp business of the J. Barton Smith Co., Philadelphia, including machinery, tools, stock of goods, patterns and good-will.

Search Lights.—Charles J. Bogue, 217 Center street, New York, calls especial attention in a recent catalogue to the several types of search lights which he manufactures. These types include the following: Pilot-house projector and position light for use on the top of pilot or deck houses, and by means of a simple mechanism can be operated from inside. This light can be used as a flash light or reflector search light. This is especially adapted for river steamers, where a special device is attached to operate the light when placed in the bow, or from the pilot-house aft.

Growth of the Sturtevant Co.—Over forty years ago B. F. Sturtevant, Jamaica Plain, Mass., established a blower manufactory. Within ten years thereafter the necessity of equipping large fans with independent means of driving led to the designing and building of a line of distinctively fan engines. For the succeeding thirty years, through a most varied experience and under the most trying conditions, these engines have been developed to their present perfection. A little over ten years ago the rapid increase in the use of electricity as a motive power opened the way for the electric fan with motor, and fan built one for the other. The opportunity was recognized, and the B. F. Sturtevant Co., Jamaica Plain, Mass. (successor to Mr. Sturtevant), immediately established an electrical department, designed a full line of fan motors and thus gave the purchaser an opportunity to choose between an engine-driven and a motor-driven fan. Today they have patterns for over 100 sizes and types of engines, ranging from to 250-horse power, and a record of over 8,000 engines sold since they first entered this field. In their various motor designs they are likewise equipped with an equal variety. A corresponding line of generators is also built by utilizing the essential parts of these motors. Both engines and motors have been developed under the exacting conditions usually incident to fan practice, namely, high speed and constant operation with comparatively little attention. With these elements of the ideally perfect generating set at hand it has been a relatively simple matter to combine them in a complete line of many sizes, ranging from 1 1-2 to 100 kilowatt. Only those machines and combinations which are distinctively standard are listed in the new catalogue which is now in preparation.

Hydro-Carbon Smokeless Furnaces.—The Hydro-Carbon system of smokeless furnaces manufactured by the Steam Boiler Equipment Co., 20 West Houston street, New York, has recently been installed in the shipyard of the Neafie and Levy Ship and Engine Buiding Co., Philadelphia, Pa., through Stuart and McCurdy, Drexel building, Philadelphia, Pa., who are agents for that territory. These agents have just received from Sommers N. Smith, vice-president and general manager of the shipbuilding company, the following letter: "Referring to the Hydro-Carbon system, which you attached to the boilers in our plant, we are pleased to inform you that after going into the matter very thoroughly, and taking account of the actual consumption of coal for eight weeks previous to the installation of your system, and eight weeks after same was installed, we find a saving of 26 1-2 per cent in fuel. Furthermore, we are pleased to inform you that this device not only creates a saving in fuel, but also gives us much better combustion and far better steaming facilities. We are very glad that we are able to give you such a favorable report, and feel that we have given the apparatus a thorough test, and it has borne out everything we have stated above in connection with our plant."

TWO PRIZES

Of Fifteen and Ten Dollars Each.

Almost every engineer has had an experience of some kind with a breakdown of main engine, boilers, or other machinery, which required much skill in making repairs.

Information regarding such emergency repairs is of great interest to engineers, and in order to give opportunity for an exchange of such experiences, we offer two prizes.

FIRST PRIZE

Fifteen Dollars for the Best Story.

SECOND PRIZE

Ten Dollars for the Next Best Story.

All that we ask is that the facts be given as completely and fully as possible. We will write them up. These facts should be accompanied by sketches or drawings giving dimensions and other information. Pencil sketches will be satisfactory if made with a little care.

The prizes will be awarded having in view the completeness of the matter furnished and the clearness of the description and drawings. Further information, if desired, can be had upon inquiry.

MARINE ENGINEERING 309 BROADWAY NEW YORK.

HYDE WINDLASSES AND CAPSTANS.—The Hyde Windlass Co., Bath, Me., has never been so busy as at present, because of the great demand for windlasses, capstans and deck engines. Some fifteen sailing vessels under construction are being equipped with windlasses, capstans and deck engines by this company, and a number of barges under construction are to have Hyde windlasses and pumps. Four of the new battleships under construction for the Government are to have Hyde windlasses and capstans, as are the protected cruisers and monitors. The Hyde Company has also supplied a number of windlasses for boats under construction in the yards at Newport News, Wilmington, Sparrow's Point, Philadelphia, Camden, also several places on the Great Lakes. A number of orders have also been received for deck winches, steering engines, etc. The Hyde Company recently made plans to double the size of its establishment, although the plant was new only three years ago.

INVESTMENT IN SCHOONERS.—Frank N. Tandy has opened an office at 31 State street, Boston, Mass., and is conducting a business of general marine agent, giving special attention to organizing and promoting companies for building and operating steel vessels and steamships, and for acting as agent for designing, building and handling vessel property. The circular which Mr. Tandy is distributing states that money carefully distributed in schooner property is a safe and profitable investment. The largest vessels pay the best because they sail faster and cost less to run in proportion to the freight carried. The application of steam for working pumps, hoisting cargoes, sails and anchors has reduced the expense of crews to a minimum. There is a good demand for schooners carrying cargoes of over 2,000 tons by people who are continually shipping coal, ice, phosphate rock, coke, railroad ties, iron rails, lumber, sugar, etc. Some of these vessels have paid from 20 to 40 per cent a year, and a few of them have paid for themselves in less than two years. Attention is especially called to the three schooners which are about to be built for general freight service on the Atlantic coast. They will be built in the best possible manner and fitted with every modern convenience for speed and economy. Settlements will be made and dividends paid after each trip. B. B. Crowninshield, naval architect, will make the plans and superintend the construction. Mr. Tandy has already placed the stock for one seven-masted schooner and is now receiving subscriptions for another.

Westinghouse Motors

For General Power Service and the Operation of Machine Tools, Cranes, Elevators, Pumps, Etc.

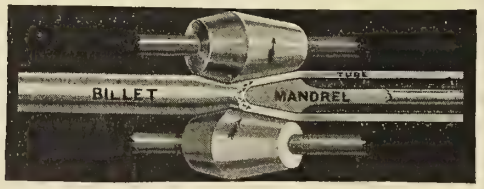
WESTINGHOUSE ELECTRIC & MFG. CO.

PITTSBURG, PA.

61 B 2 *All Principal Cities in U. S. and Canada*

FREE SAMPLE OF ASBESTOS PACKING.—The Bestosking Packing and Supply Co., 170 Summer street, Boston, Mass., is the sole agent in the United States for Turner Bros., Ltd., of Rochdale, Eng., who manufacture an extensive line of asbestos packings. Their packings are reported to head the British Admiralty list, the greatest honor that a manufacturer can secure, because this position can only be obtained after the products have had many severe and competitive tests. A free sample of sheet packing will be sent to all inquirers, in order to show its adaptability to withstand high steam pressure and excessive temperature. There is a double copper wire in the weft and a single copper wire in the weave of this packing. This acts as a perfect binder, because each and every strand of this cloth is woven into one solid fabric. With such a composition of fire-proof materials, such as asbestos and copper wire, there is no chance of its becoming vulcanized when subjected to high pressure. Following is a descriptive list of the packings carried in stock by the Bestosking Co.: No. 73, a round non-metallic block packing; No. 74, a round asbestos metallic cloth packing, suitable for high pressures; No. 75, a square asbestos white metal cloth packing; No. 82, an asbestos multiple core non-metallic packing; No. 83, also a dagger packing, but has a metallic wire insertion; Nos. 85, 86 and 87 are all known as the Codifix packing. These goods have a split metal center, which alows for the play of the rod if same is not running perfectly true. These goods are especially efficient for triple and quadruple expansion engines. No. 101, a sheet packing which is asbestos fiber woven into cloth, each strand of the weft having a double copper wire insertion, and each strand of the weave having a single copper wire insertion; No. 103. an asbestos metallic tape used for making joints of all kinds.

Electrolyic action on Brass Tubing which was taken out and replaced by "Benedict-Nickel." —From a photograph.



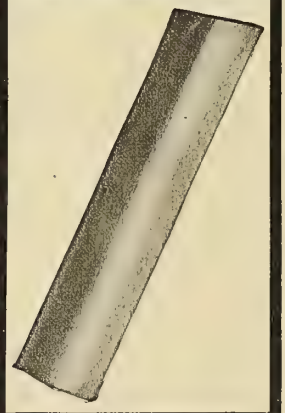
Condenser Tubes

made from

"Benedict=Nickel"

resist **Corrosion** and the destructive effect of

Electrolysis:



"Benedict-Nickel" Tubing in perfect condition after 28 months' service. —From a photograph.

"Benedict-Nickel" Condenser Tubes are perfectly homogeneous and highly non-corrosive. They are rolled from solid cylindrical billets which contain absolutely no zinc nor any other weakening metal.

The illustration shows how "Benedict-Nickel" Condenser Tubes are made. The spiral formation given to the walls of the tubes increases their tensile strength 50% over brass, and makes them the toughest and strongest tubes manufactured.

Another advantage is that, owing to their extreme stiffness, they can be made of thinner gauge, and yet be stronger than the thicker brass or copper tubes of the same diameter. The economical feature will therefore be readily understood.

A treatise on "Electrolysis of Condenser Tubes" mailed upon request.

We are also among the largest manufacturers of Seamless Brass and Copper Tubing, and the ONLY manufacturers in the United States of this tubing rolled spirally from a solid billet. This is the process used in the manufacture of "Benedict-Nickel."

BENEDICT & BURNHAM MFG. CO.,

MILLS AND MAIN OFFICES, **WATERBURY, CONN.**

DEPOTS: **NEW YORK, 253 Broadway.** **BOSTON, 172 High Street.**

V. WARING, N.Y.

BIG ORDER FOR ANCHOR CABLE.—The Newhall Chain Forge and Iron Co., 26 Cortlandt street, New York, manufacturers of high grade hand-made dredge and steam shovel hoisting chains, close-link and stud-link yacht and ship cables, special steel loading and skidding chains, shackles, swivels and other forgings, has secured the contract for making the large anchor chain cables required by the Eastern Shipbuilding Co., New London, Conn., for the two large steel steamers under construction for the Great Northern Steamship Co., and which were briefly described in MARINE ENGINEERING for December, 1900. These steamers will be the largest freight-carrying steamers ever built, and are designed for the foreign carrying trade between the United States and the Orient. The chain consists of 660 fathoms of 3 3-16 inches diameter iron and 300 fathoms of 1 7-8 inch diameter iron, stud-link cables, the former being constructed in shots of 15 and 30 fathoms each, which are connected with 3 7-16-inch shackles and swivels. Each link of this large-sized chain will measure approximately 19 1-2 inches in length and about 11 1-2 inches in width, and will weigh about 100 pounds to the foot, so that the total tonnage represented by this one order will equal about 215 tons. The making of the 3 3-16-inch chain will be the largest ever attempted in this country, if not in the world. The Newhall Chain Forge and Iron Co., represented in this order the well-known iron expert and chain maker, Eli Attwood, formerly of Staffordshire, England, and now the president, general manager and superintendent of the Lebanon Chain Works, in whose shops this chain will be made. The chain will be inspected and tested under the supervision of inspectors of Lloyd's Registry, of England. The competition on this order between England and the United States was exceedingly close.

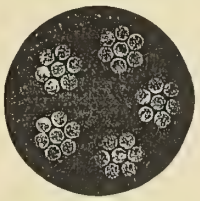
FREE SCHOLARSHIPS FOR MECHANICS.—Attention is called to the notice of the withdrawal of the Free Scholarship offer recently made by the American School of Correspondence, Boston, Mass. This is an unusual opportunity for obtaining a technical education by correspondence. The American School of Correspondence is situated in Boston, and makes a specialty of marine steam, electrical and mechanical engineering, heating, ventilating and plumbing and mechanical drawing. A careful inspection of the school's instruction papers convinces one of the painstaking thoroughness and accuracy which distinguishes the work of this institution. The school is chartered by the Commonwealth of Massachusetts. The instructors are all graduates of leading scientific schools, and have had experience along engineering lines, a number being on the instruction staff of the great technical schools for which Boston is famous. The courses have been carefully laid out by educators and engineering experts, and embrace every subject required by the up-to-date engineer and mechanic in order to have complete mastery over the theoretical details of his daily work. The school was founded to give instruction to those men who have been compelled by adverse circumstances to leave school at an early age in order to earn a living. With this idea in view, the tuition has been purposely placed very low, so that no wage-earner shall be debarred from receiving the benefit of such a course. By taking advantage of the school's offer, the ambitious mechanic who can furnish proper recommendations may receive a thorough technical education by merely devoting his spare moments to systematic home study. A postal card addressed to the American School of Correspondence, Boston, Mass., will procure a handsome handbook, describing its methods and courses and giving letters from graduates expressing the results of their experience.

IMPROVED PANCOAST VENTILATORS.—The Pancoast International Ventilator Company, Philadelphia, Pa., is a new corporation which has succeeded in obtaining international connections for manufacturing and selling ventilators. The customers are among the most prominent firms of the country, and their export business is now very large. Several large shipments are now being made to South Africa and Australia of both copper and galvanized iron ventilators. Some of the few sales that they have lately made are 20-30-inch bases to National Steel Co., Uniontown, Pa.; 10-36-inch, Harder-Lynes Foundry and Machine Co., Birmingham, Ala.; Wm. Cramp and Sons, 10-30-inch copper insulators for new machine shops; 12-36-inch bases to American Bridge Co.'s new shops, Trenton, N. J.; 7-48-inch bases, Keystone Varnish Co., Erie Basin, New York; 20-30 and 36-inch for the New Grason Iron Works, Eddystone, Pa.; 66-18-inch ventilators and smoke jacks, Seaboard Air Line; 1-72-inch, St. Francis Hospital, Buffalo, N. Y., and many others. Mr. Jos. C. Henois, formerly general manager of the National Pancoast Ventilator Co., is president, and James M. Motley, of Thornton N. Motley Co., New York and London, is vice-president. The principal salesroom and factory is at 223 and 225 South Fifth street, Philadelphia.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire.
The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

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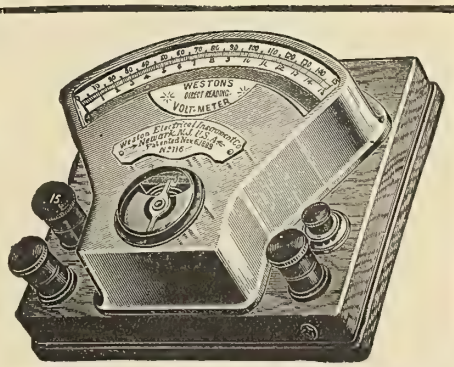
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
Waverly Park, Essex County, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

VAN STONE JOINT.—The Walworth Mfg. Co., 128 Federal street, Boston, Mass., which has its New York office in the Park Row Building, calls the attention of users of high pressures to the Van Stone joint. The many special features of these joints are referred to in a folder which is being sent out by the company.

WESTINGHOUSE PAN-AMERICAN EXHIBITS.—Among the largest and most complete exhibits at the Pan-American Exposition are those of the several Westinghouse companies, especially of the electric company. In the city of Buffalo and vicinity this company has over 150,000 horse power of electrical machinery in operation, including the ten 5,000-horse power generators at Niagara Falls. It is this installation that has made possible the most brilliantly-lighted of expositions, and which has contributed so successfully to its operation. Almost every traveler knows that his safety and comfort are in a large measure due to the Westinghouse air brake. Over 1,250,000 of these brakes are now in service throughout the world. Those familiar with engineering affairs are acquainted with the very extended use of the steam and gas engines built by the Westinghouse Machine Company. Those who use electrical machinery, whether for lighting, power or traction, know the apparatus built by the Westinghouse Electric and Mfg. Company. Equally well known are Church, Kerr and Company, whose work practically covers the entire field of engineering as applied to power systems and their application to transportation, lighting and industry; the Union Switch and Signal Company, manufacturers of every known variety of automatic and semi-automatic railroad signals, makers of frogs and switches and of mechanical, pneumatic and electrical interlocking mechanisms of all kinds; the Sawyer-Man Electric Company, makers of incandescent lamps, whose product has been on the market for over twenty years. These are the Westinghouse companies which have joined in a common exhibit. The operation of two gas-engine generating sets is one of the features of greatest interest in the Electricity building. The large unit consists of a 300-horse power three-cylinder, four-cycle gas engine, direct coupled to a 2,200-volt, two-phase, revolving-field alternator. The smaller unit is a three-cylinder, four-cycle gas engine, direct connected to a 125-volt, direct-current generator. The small gas engine generating set is used for exciting the large alternating current generator, for lighting the switchboard, and for charging the storage sparking outfits for both gas engines. It is used also for operating the motor-generator outfit and for lighting four large electric signs, two of which are placed over the main entrances of the Electricity building. The switchboard for controlling these generators is equipped with the latest type of measuring instruments, switches, circuit-breakers and auxiliary apparatus. Other standard switchboards for lighting and power service are in place. One of the most novel attractions in the Electricity building is a high-voltage sign. It consists of two large glass plates, covered on the back with metal foil, with the name "Westinghouse" in its center. An alternating pressure, having a maximum of 40,000 volts, is applied between the foil on the back and the metal letters on the front. As the potential is raised a fringe of violet light appears about the letters, which, gradually increasing in intensity, culminates in a nyriad branched lightning discharge that plays continuously over the surface of the plate, and is accompanied by a continuous crash not unlike thunder. The air brake exhibit in the Railway building, has a rack representing a six-car train, including the locomotive, equipped with the high-speed brake. This installation of an apparatus now coming into general use shows the proper method of application and operation. Many attendants are continually at hand to explain all the features of each exhibit. This is an important feature of the electrical exhibit, which is very large, and includes almost everything of an electrical nature.

STANDARD SEAMLESS TUBE CO.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

NATIONAL TUBE COMPANY, Selling Agents

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Foreign Office—Dock House, Billiter Street, London, E. C., England

TECHNICAL TERMS ILLUSTRATED.

An Emergency Repair Job.

HARTFORD MATTRESSES.—The Hartford Woven Wire Mattress Co., Hartford, Conn., has recently filled an order for 219 ward springs for the Sailors' Snug Harbor, New Brighton, S. I. This company also makes a specialty of everything in the line of berth fittings, mattresses, etc.

STUART LAUNCHES.—The John Stuart Co., Wollaston, Mass., has had the busiest season in the history of the company. This company has kept its plant in full operation right throught he season, and has plans for several launches now on hand, and is already at work building several launches for next season.

MARINE RAILWAYS.—Owing to the great increase in the business of designing and building marine railways, H. I. Crandall and Son, 100 Border street, East Boston, Mass., have found it advisable to incorporate as the H. I. Crandall and Son Co. James L. Crandall, who has been in entire charge of the business for many years is president and treasurer of the new company, and Percy H. Middleton vice-president and secretary.

SPRAGUE SPECIALTIES.—The Sprague Electric Company, 527 West Thirty-fourth street, New York, has found it difficult to keep up with orders lately in all lines of its manufactures. Because of the hot summer, the company has never had such a demand for Lundell fan motors, and the sales of the Interior Conduit have never equalled those of this season. Those of our readers interested in the subject of electricity will want to send for a copy of the bulletin describing Greenfield flexible steel armored conductors.

BOILER COMPOUND.—Engel and Fagersten Chemical Co., 1702 Wabash avenue, Chicago, Ills., received the following letter from the North German Lloyd Steamship Co., dated May 14, 1901: "We confirm our request of today, requesting that you ship us at earliest opportunity 5 tons (5,000 kilograms) of your Anti-fouling Compound for boilers, and await your reply. We trust you will give us for this quantity, as also in view of the fact that our company will probably regularly require similar quantities, your best possible price, and await your advices in regard to same. We are desirous of shipping the Compound at earliest possible moment, and if the entire quantity can not be forwarded at once, we would ask you to ship us such part thereof as may be possible, advising us of shipment and sending us railroad bill of lading, so that we may have same promptly cared for on arrival." In another letter the agents of the steamship company wrote: "Since July, 1900, we have gradually used on seventeen different steamers your Anti-fouling Compound for boilers with satisfactory results, and that we intend to introduce this Compound on all of our steamers, for which purpose, as you are aware, we have but recently again ordered 5,000 kilograms."

WATERPROOF GLUE.

Specially adapted for all Marine Woodwork.

CASEIN COMPANY OF AMERICA,

DEPARTMENT F.

74 John Street, New York.

Exclusive Manufacturing Rights

under U. S. Patent, together with latest modifications for SEABOARD and GULF STATES of "CRESCENT" feathering or non feathering

REVERSIBLE PROPELLER

Manufacturing Rights for interior States reserved. Address

Superior Gas Engine Works, West Superior, Wis.

ENGINEERING TAUGHT—

"Hawkins' Educational Works"—practical books for practical men. Sold on monthly payments. 6 volumes in set, delivered complete. Highly approved and standard. Send for description of books and terms.

THEO. AUDEL & CO., Publishers,

63 FIFTH AVENUE, NEW YORK CITY.

Webb's Nolek Stuffing Box Packing

A handy PACKING for everything. For high-speed engines it has no equal. It cannot burn, char, or blow out. Try it; it will save you lots of trouble.

Once tried; always used. One box makes a friend.

In wooden cornered boxes; 5, 10, 25, 50, 100 lbs. In size, ¼ to 3 or more inches; in diameter, varying by sixteenths. In any desired lengths.

EDWARD G. WEBB & CO., 312 North 3d St., Philadelphia, Pa.

The Peerless Spiral Piston and Valve Rod Packing

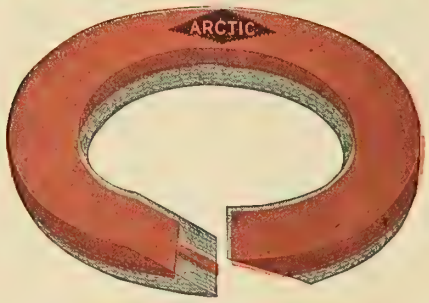
It will hold 400 lbs. of steam

Once tried always used

Will run twelve months in high speed engines

Arctic Packing

To be used exclusively for packing Ammonia Pumps



This packing is made in several hundred sizes

This packing is specially constructed for ice machine service, of layers of rubber and plies of duck which are so arranged and laid as to best resist the actions of ammonia, cold and heat.

The duck is a specially made duck, frictioned with an entirely new compound heretofore unknown to the rubber trade, and the core and back is of the celebrated Rainbow Packing compound, which is specially adapted to resist ammonia, cold and heat.

This packing is constructed on a strictly scientific basis, and the results obtained thus far have demonstrated fully its value for ammonia packing.

This packing is made in several hundred sizes. The rings may be slipped onto the rod very readily.

The usual rule is to be observed in giving measurements, the depth and width of stuffing box and size of piston rod, in order to get the size desired

Sole Manufacturers of the

Celebrated Rainbow, Eclipse Sectional Rainbow Gasket, Hercules Combination and Honest John Packings.

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These Goods Can be Obtained at All First-Class Dealers.

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" 101, Thos. J. Hanlon, 14 Ave. A, Atlantic City, Norfolk, Va.
" 102, Chas. La Bounty, Box 563, So. Haven, Mich.
" 103, C. H. Hall, Box 512, New Berne, N. C.
" 104, J. H. Blumer, Moss Point, Miss.

TRADE PUBLICATIONS.

The three cylinder gas engine manufactured by the Duryea Power Co., Reading, Pa., is described very completely in a catalogue which the company is distributing. Although these engines were primarily intended for use on automobiles, they are particularly well adapted for launches. The three cylinder type is used, as stated in the catalogue, as it gives the greatest efficiency with least vibration, etc.

The Standard Tool Co., Cleveland, Ohio, is distributing a very neat catalogue devoted to its many specialties. This is neatly printed by the use of red borders on each page, and the cuts and type are made more effective by means of tinted blocks. The cover is of an elaborate design printed in red, yellow and black. The copy received by MARINE ENGINEERING is issued in Spanish, but undoubtedly the catalogue can be had in English

The Roller-Bearing and Equipment Co., Keene, N. H., has now ready for distribution a catalogue devoted exclusively to ball and roller bearings. The catalogue comprises thirty-two pages and covers very fully the subject of bearings of all kinds. This business is now under the charge of W. S. Rogers, who has been connected with the ball and roller bearing business for many years. On page three of the catalogue is a list of a large number of the uses for which this company manufactures bearings.

Users of gas engines will find one of the most interesting catalogues ever issued on the subject of gas engines in the one issued by the Lozier Motor Co., Plattsburgh, N. Y. This catalogue is bound in a handsome green cover and comprises forty-eight pages. One of the features of the catalogue is that the engine is shown in full detail and very completely and fully described. The illustrations show not only the exterior views of the engine but give many sectional views, and describe fully all of the working parts. To anyone who is at all interested in the subject of launches or gas engines, this catalogue will be of much value.

The De Laval steam turbine has a neat catalogue devoted to it which is now being distributed by the De Laval Steam Turbine Co., 74 Cortlandt street, New York. The cover is a very patriotic one, being a reproduction of the American flag. The catalogue comprises sixty pages, and contains many full-page illustrations to show the application of these turbines. Sectional views explain fully the construction of this engine, and each separate part is shown so that the entire machine is fully explained. The catalogue also contains considerable information regarding the direct connecting of these turbines to steam pumps, centrifugal pumps, electric plants, etc. There is so much popular interest in the subject of turbines of this kind, that many of our readers will want to send for a copy of the catalogue.

The mechanical rubber goods manufactured by the Boston Belting Co., 256 Devonshire street, Boston, Mass., have one of the most complete catalogues devoted to them that we have seen for a long time. This catalogue is handsomely bound in heavy paper cover and neatly printed in colors. The text comprises 164 pages, and is neatly printed on heavy coated paper. The index shows how comprehensive is the business of the company, for almost everything that is made of rubber is manufactured. These specialties include belting in great variety, cement, hose of all sorts, blankets, diaphragms, gaskets, mats, packing of all kinds, tubing, washers, etc. A concise history of the company shows that it has had an uninterrupted business career of over seventy-two years. Because of the completeness of the catalogue and the great expense necessary to properly prepare it, it is not intended for general distribution, but undoubtedly any user of mechanical rubber goods who is a reader of MARINE ENGINEERING can have a copy by mentioning this magazine.

Yachtsmen and others interested in small boats in which power is used will find much of interest in the catalogue issued by the Milwaukee Automobile Co., Milwaukee, Wis., which describes this company's steam plant, which is adapted both for marine use and to automobiles. The boiler and engines are well illustrated and described, and many special features are referred to. One factor of importance is the fusible plug in the boiler, which automatically prevents the burning of the tubes.

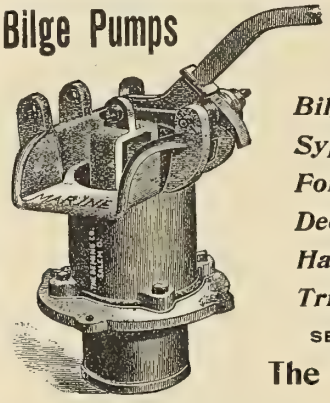
Users of Pneumatic Tools will have sent to them upon request a copy of Little Giant Pneumatic Tools, which is booklet No. 6 in the Ryerson Technical Library, issued by Joseph T. Ryerson and Sons, 18-22 Milwaukee avenue, Chicago, Ill. The first part is devoted to drills, giving tables of sizes, capacities and directions for use. Part two is devoted to describing and illustrating the Little Giant hammers. Part three is a technical treatise on pneumatic hammers and drills.

The steam specialties manufactured by the Standard Steam Specialty Co., 111 Fifth avenue, New York, have a complete catalogue of forty-eight pages devoted to them. Each specialty is illustrated, generally with a cut of full-page size, is fully described, has price lists and wherever necessary, tables of sizes, capacities, etc. The specialties include pump governors, high pressure boiler feeders, back pressure valves, steam traps, blow-off cocks, pressure reducing valves, steam separators, etc. Copies of the catalogue can be had upon application to the company.

Buffalo Steel Plate Planing Mill Exhausters is the title to the latest publication issued by the Buffalo Forge Co., Buffalo, N. Y. It is part of a series of booklets issued by this company, all of which are of convenient pocket size. This one contains twenty pages and covers very fully the subject of these special exhausters. Buffalo Volume Blowers and Exhausters is the title to another booklet which this company has ready for distribution. It comprises twenty pages and contains many illustrations of blowers and exhausters of different types and sizes, together with much information regarding the subject.

The machine tools for working plates, bars and shapes, which are manufactured by the Hilles and Jones Co., Wilmington, Del., are splendidly illustrated and concisely described in an exceedingly well printed catalogue devoted to them. There are shown twenty illustrations of new machines with modifications of standard designs and special attachments for punches and shears which have not been shown in previous catalogues issued by this company. As the pages are nine inches square and most of the illustrations are full-page size, the value of the catalogue can be readily comprehended. Following these pages are about a dozen more pages containing three or four illustrations to a page, showing the standard tools of every kind which have been a special product of this company for many years.

Bilge Pumps



We make a complete line of

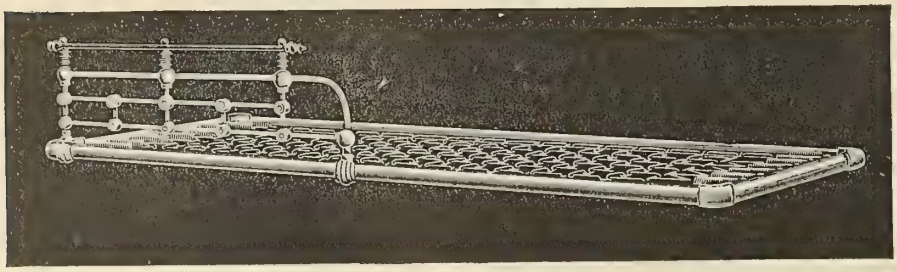
Bilge Pumps,
Syphon Pumps,
Force Pumps,
Deck and other
Hand Pumps.
Triplex Pumps.

SEND FOR CATALOGUE.

The Deming Co.,
Salem, Ohio.

The Hartford Woven Wire Mattress Co.

P. O. BOX 363. 618 Capitol Ave., Hartford, Conn., U. S. A.



MANUFACTURERS OF **Berths Complete,**

either metal or wood, with woven wire mattress or other spring mattress attached; or

Woven Wire or National Link Mattress only,

for berth bottoms for vessels, steamships, yachts, etc.

We manufacture the most approved articles for these uses, and will furnish anything to specification desired, of any dimensions, and of any irregular form required. Address for any information as above, and mention this journal.

Something

YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J., U. S. A.

SALESROOMS AT
68 Reade Street, New York City.
1020 Arch Street, Philadelphia, Pa.
304 Market Street, San Francisco, Cal.
London Office: 26 Victoria Street, Westminster.

Joseph T. Ryerson and Sons, 18-22 Milwaukee avenue, Chicago, Ill., have issued in booklet form, a fanciful story entitled, 'The Strange Story of Shan-Dai, Pharaoh's Chief Boiler Maker." This story was originally published in the *Boilermaker and Sheet Metal Worker* in serial form, and is reproduced in this form for distribution. We infer that copies of the story can be had from the firm without charge.

A Pan-American Booklet has been issued by the Westinghouse Companies' Publishing Department, Pittsburg, Pa., which is now ready for distribution, either from the office in Pittsburg or at any of the exhibits of the Westinghouse Companies in the Exposition grounds. This booklet gives a very comprehensive idea of the work accomplished by the Westinghouse Companies. The booklet is neatly printed and is bound in an illuminated cover. It is well illustrated with fine pictures of the various Westinghouse works and the special products of each.

Asbestos Packing is the title to a booklet which the H. W. Johns Mfg. Co., 100 Williams street, New York, is now distributing. Brief reference is made to the use of this packing on war vessels, in gas engines for launches, and in Scotch boilers.

Steam Hot Blast Apparatus is the title to catalogue No. 118, issued by the B. F. Sturtevant Co., Jamaica Plain, Mass. This catalogue is neatly bound in green paper, printed in two colors. The text comprises fifty-four pages exceedingly well illustrated, and containing much information regarding steam hot blast apparatus. There are also tables covering many pages which are very valuable to anyone interested in the subject. Copies of the catalogue can be had upon application.

The drill presses manufactured by Knecht Bros. Co., Cincinnati, Ohio, are illustrated and described in a catalogue, copies of which can now be had upon application. The catalogue is bound in a neat cover, and there are full page engravings of the drills with the special characteristics of these machines fully described in the text. There are also several pages of testimonials from leading concerns which have used these drills, speaking in very complimentary terms.

An Invitation is the title to a neat booklet issued by the Warner and Swasey Co., Cleveland, Ohio, referring to this company's exhibits at the Pan-American Exposition. The machinery exhibit is in Block 42, Machinery Building, and includes lathes, milling machines and other well-known machine tools which this company manufactures. The astronomical exhibit is in Block B.B., Liberal Arts Building, and is one of the finest exhibits ever made of telescopes, marine glasses, etc., and has attracted more than ordinary attention from visitors.

The metallic packings manufactured by the United States Metallic Packing Co., 13th and Noble streets, Philadelphia, Pa., are concisely described and exceedingly well illustrated in a sixteen-page catalogue, which is now ready for distribution. The illustrations show packings of a number of different kinds and for different purposes, and are all very handsome. The text gives much information regarding the subject of packings in general and the United States packing in particular. A copy of this book should be in the office of every engineer.

Smooth On is fully described in a sixty-page catalogue which is well illustrated, and which is now being distributed by the Smooth-On Mfg. Co., 547 Communipaw avenue, Jersey City, N. J. It tells all about the different Smooth-On cements, what Smooth-On is, how it is used, giving many illustrations of its use, and tells why it is of value to the engineer, machinist or steam fitter. There are very few readers of Marine Engineering who will not appreciate a copy of this catalogue, because of the practical information which it contains regarding this compound. The illustrations show the value it is in emergency repair work in boilers, pumps, etc.

Walworth Mfg. Co., 130-136 Federal St. BOSTON

Specialty of **BRASS VALVES** and Fittings for Marine Construction

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work

Sole Manufacturers of

Van Stone Pipe Joint

Which does not Weep under heavy pressure

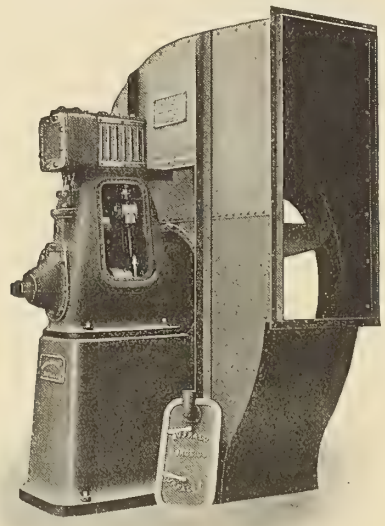
Send for Catalogue

N. Y. Office: Park Row Building

Prices and Terms on Application

BUFFALO STEEL PLATE FANS

FOR FORCED COMBUSTION



BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

The French Minister of Public Works

in a recent circular letter says, regarding inquiries made of the Consulting Committee of Public Health and the leading engineers

"THE RESULT of this double inquiry is that it is agreed that on the one hand the substitution of zinc white for white lead is altogether desirable from the point of view of health, and that on the other this substitution can be realized without inconvenience from the technical point of view. I have in consequence decided that in all work executed on account of my administration the use of paints or glazings with a white-lead base shall henceforth be interdicted."

Full information regarding zinc white is contained in the following pamphlets, which will be sent free to any address:

"The Paint Question"
"Paints in Architecture"
"House Paints: A Common-Sense Talk About Them"

The New Jersey Zinc Co.
11 Broadway New York

The Federal filter is described in an eight-page folder now being distributed by Claude Deutsch, 141 Broadway, New York. The many different types of filters are illustrated, and quite a little descriptive matter is given regarding them.

"Jack's Letter" is the title to a booklet issued by the Western Gas Engine Co., Mishawaka, Ind., which describes in an interesting manner the pleasure of using a launch equipped with a gas engine. The booklet is neatly printed and well illustrated.

The prospectus of the New York Nautical College, situated at 132 Water street, New York city, is now being distributed. This college is under the immediate charge of Captain Howard Patterson, who is well known as a ship master and writer on nautical subjects. Anyone contemplating a course in navigation and kindred subjects will find this prospectus well-worth perusal.

Graphite for automobiles, whether propelled by gas, steam or electric power, is the title to a very useful and interesting booklet now being distributed by the Joseph Dixon Crucible Co., Jersey City, N. J. The subject of lubrication is always an interesting one, and although this booklet limits itself to a small field, it is one which will interest many of our readers whether they have to do with a steam engine of any size or a small gas engine.

Boiler Bracing and Braces is the title to a booklet issued by Joseph T. Ryerson and Sons, 18-22 Milwaukee avenue, Chicago, Ill. This booklet takes up the subject of boiler bracing from a practical point of view, and embodies much information of value to boiler makers, their foremen and those who lay out boilers. In the back part of the booklet is a series of diagrams showing the bracing and flue spaces of standard tubular boilers as recommended by the best authorities.

BUSINESS NOTES.

Mechanical Center of Gravity Indicator.—Theodore Lucas, 97 Water street, New York, reports a steadily increasing demand for his center of gravity indicator. This device indicates at once any change in the amount or position of cargoes. Circulars describing fully the device are sent to all inquirers.

Coll's Defiance Pump.—For lifting water to a height not exceeding 100 feet, one of the most efficient pumps made is believed to be the Coll's patent Defiance pump, manufactured by the Tranter-Davison Mfg. Co., Pittsburg, Pa. This pump is double acting and requires a very small amount of steam for the work done. It is made of brass and will readily lift water to a height of about 100 feet, with a pressure of only 50 pounds. These pumps are manufactured in sizes from 3-4 inch to 6 inches, with a capacity per hour at 50 pounds steam pressure varying, according to the company's catalogue, from 250 gallons for the smallest size to 16,000 gallons for the largest size.

Crane Company.—On account of the fact that the space devoted to floor molding has been entirely inadequate to the demands of the business and in order to relieve the works at Canal and Judd streets, Chicago, of some of the heavy work, Crane Co. has this summer erected at its works at Jefferson, Van Buren and Desplaines streets, a foundry which is to be devoted exclusively to very heavy work, especially flanged fittings and large valves. It is a one-story brick building, with a slate roof, and is equipped with two cupolas, an electric traveling crane, and every other modern convenience. This new foundry will increase Crane Co.'s capacity for very heavy work about 50 per cent, and it is expected to be in operation in about thirty days.

TWO PRIZES

Of Fifteen and Ten Dollars Each.

Almost every engineer has had an experience of some kind with a breakdown of main engine, boilers, or other machinery, which required much skill in making repairs.

Information regarding such emergency repairs is of great interest to engineers, and in order to give opportunity for an exchange of such experiences, we offer two prizes.

FIRST PRIZE

Fifteen Dollars for the Best Story.

SECOND PRIZE

Ten Dollars for the Next Best Story.

All that we ask is that the facts be given as completely and fully as possible. We will write them up. These facts should be accompanied by sketches or drawings giving dimensions and other information. Pencil sketches will be satisfactory if made with a little care.

The prizes will be awarded having in view the completeness of the matter furnished and the clearness of the description and drawings. Further information, if desired, can be had upon inquiry.

MARINE ENGINEERING 309 BROADWAY NEW YORK.

Submarine Signal Co.—A company has been organized under the laws of Maine with a capital stock of one million dollars, which is known as the Submarine Signal Co. The offices of the company will be in Boston. Henry M. Whitney is president and J. B. Millet vice-president and general manager. The first thing that the company will do as soon as the organization is perfected and a factory in shape will be to equip the steamers of the Dominion Line with submarine signals.

Pneumatic Appliances.—John Paterson, representing one of the largest shipbuilding firms in Scotland, has been in the United States recently inspecting many ship yards and steel works, and studying their equipment. He has given much attention to the subject of pneumatic tools and appliances, and went deeply into the question by visiting the several factories of the Chicago Pneumatic Tool Co., investigating fully the whole subject of pneumatic tools. The Chicago Pneumatic Tool Co. has just received, through its foreign office, the largest single order for pneumatic tools ever placed with them, consisting of 1,525 tools, as follows: 275 Boyer long-stroke hammers, 350 No. 1 Boyer chipping and calking hammers, 400 No. 2 Boyer chipping and calking hammers, 25 No. 000 Boyer extension riveters, 25 No. 000 Boyer Yoke riveters, 25 1 3-4 inches by 6 inches Boyer yoke riveters, 150 No. 2 Boyer drills, 250 No. 3 Boyer drills, 25 No. 4 Chicago breast drills.

Gas Engine-Driven Dynamos.—The Sprague Electric Company, 527 West Thirty-fourth street, New York, has recently closed an interesting order for three Lundell split-pole 500-kilowatt engine-type generators, with speed of 100 R.P.M. and wound for 250 volts, to be direct connected to gas engines. These three generators of 500 kilowatts capacity each will be installed in the new works of the Lackawanna Iron and Steel Co., at Buffalo, and are designed for a continuous overload of 25 per cent at a high efficiency. The gas engines will utilize as fuel waste gas from the coke ovens of the Lackawanna Company. These will probably be much the largest generators in this country ever operated by direct connected gas engines, and the method of utilizing waste gases for such large amounts of power has probably never before been attempted in the United States. The Sprague Electric Company has been very successful with the split-pole machines, as the ingenious design, high efficiency and remarkable endurance give them much commercial value.

Westinghouse Generators.

THE STANDARD OF THE WORLD.

For Marine Lighting and Power Installations.

Westinghouse Electric

& Mfg. Co., Pittsburg, Pa.

New York, Buffalo, Philadelphia, Syracuse, Atlanta, Chicago, St. Louis, Seattle, Washington, D. C., Dallas, Minneapolis, Boston, Cleveland, Cincinnati, San Francisco, Los Angeles, Denver, Mountain Electric Company. Ahearn & Soper, Ltd., Ottawa, Canada. G. & O Braniff & Co., City of Mexico.

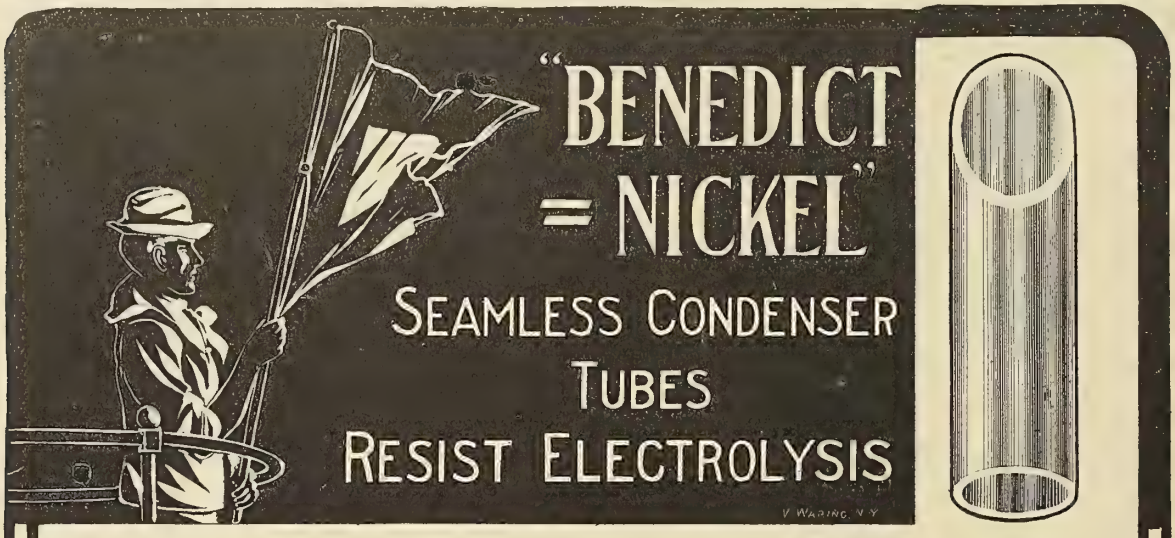
61 c 2 Westinghouse Electric Co., Ltd., Norfork Street, Strand, London, W. C.

Consulting Engineer.—Theodore Lucas, who recently opened an office at 97 Water street, New York, calls attention of the public in general and to his friends in particular to the fact that he devotes his best efforts and entire time exclusively to practice as consulting and constructing naval architect

Free Offer.—In order that it may understand just what service it can be to owners and engineers of steam plants where there is any trouble with boiler scale, the Eagle Oil and Supply Co., 104 Broad street, Boston, Mass., offers to examine free of charge the water used, and to make a preparation of U. S. Standard boiler compound which, it is claimed, will overcome the scale. In making this offer the company states that it will send the compound on trial, and if it is not what is claimed for it, the compound can be returned at the company's expense, and no charge will be made for what has been used.

Cleveland Pneumatic Tool Co.—The Cleveland Pneumatic Tool Company has opened a Chicago office at 335 Wabash avenue, in charge of H. S. Covey, where samples of the complete line of chipping, beading and caulking hammers, the "Cleveland" long stroke riveting hammers, piston, rotary and breast drills may be seen.

Merwarth Gaskets.—The Merwarth Metallic Gasket, manufactured by the Merwarth Metallic Gasket Co., 107 Liberty street, New York, can be used on any machined faced joint of any size or shape, and is claimed to absolutely prevent leakage on air, water or steam. These gaskets have recently been used on cylinders as large as 60 inches in diameter with satisfactory results. They do not deteriorate, which should be a very satisfactory advantage for marine work, as a few can be carried in stock and always be ready for immediate use.



"Benedict-Nickel" contains in itself all the elements for withstanding the electro-chemical action which brass and copper in themselves lack.

The tubes are hot-rolled from solid cylindrical billets, which gives them a spiral formation like that of a twist gun barrel.

This results in the strongest and toughest tubing possible to manufacture.

Repeated tests have proved that "Benedict-Nickel" is practically indestructible, whereas brass and copper have frequently to be renewed.

We control absolutely the process of manufacture of "Benedict-Nickel" Seamless Tubing in the United States. We apply the same process of manufacture to Seamless Brass and Copper Tubing—of which we are among the largest manufacturers in this country.

Send for treatise on "Electrolysis of Condenser Tubes."

BENEDICT & BURNHAM MFG. CO.,

Mills and Main Office, WATERBURY, CONN.

New York, 253 Broadway. **Boston, 172 High St.**

Vechten Waring, N. Y.

Hartford Woven Wire Mattresses.—The Hartford Woven Wire Mattress Co., Hartford, Conn., has furnished during the past year to the United States Marine Hospital Service, 215 cabinets. This one order gives an idea of the high standing which this company's goods have with the government authorities. The company has also furnished lately many complete berths for well-known steamships and vessels.

Valuable Catalogue and Reference Book.—Among the pioneer firms identified with the industrial growth of Chicago is Geo. B. Carpenter and Co., located at 200-208 South Water street. This concern was established as a ship chandlery house in 1840, and has outgrown a number of buildings. The sail department is a prominent feature of their business, and probably more sails seen on the Great Lakes are furnished by this concern than any other. All kinds of marine instruments, tackle blocks, wire and manila ropes, packing, hose, rubber goods, paint brushes, marine lamps, marine clocks, in fact everything used on vessels are furnished by this concern at the lowest prices consistent with first-class goods. Careful attention to every inquiry and a reputation for square dealings have made this concern an enviable reputation. They ship their goods to all parts of the world. Their 1901 catalogue, which is a most complete and valuable reference book, will be sent on receipt of 5 cents in stamps.

Portable Pneumatic Drills.—The Empire Engine and Motor Co., Orangeburg, N. Y., issues a little folder regarding the Empire pneumatic drills, in which these drills are completely described as follows: These drills are so constructed that all working parts are covered. The pinion attached to end of piston meshes into two intermediate gears, and they into an internal gear-rack, which is stationary, being held in place by the cylinder head. The two intermediate gears are placed on the arm of the spindle, which travels with the gears, thereby equalizing the strain on bearings and making friction light. They are powerful and durable, and are capable of doing a large amount of work with but little wear. All Empire tools are made by skilled workmen and of the best material, and, the parts being interchangeable, any part can be readily replaced from stock always kept on hand. A prominent feature of these tools is that the space occupied by the gears between the lower cylinder head and the rack base is constructed to form an oil chamber which, when once filled, keeps the gears and bearings continually oiled, insuring perfect lubrication and avoiding the necessity of frequent oiling.

Stuart Launches.—In spite of its being regarded as the dullest season of the year for launch builders, the John Stuart Co., Wolaston, Mass., has twelve boats of different capacity under construction at its yard. Several of these are of large size and are to be fitted with gas engines of considerable power.

Drawing and Tracing Papers.—The Elliott Electric Blue Print Co., 723 Liberty avenue, Pittsburg, Pa., is now sending out to all inquirers a sample book of drawing and tracing papers which have been selected with great care to meet such special demands as those in the marine field. Most of these papers are imported direct from the foreign market by this company, tested by the maker to prove their efficiency, and the entire line is believed to be one of the most satisfactory on the market. Full information regarding the quality, etc., with rock bottom prices, can be had upon application to the company.

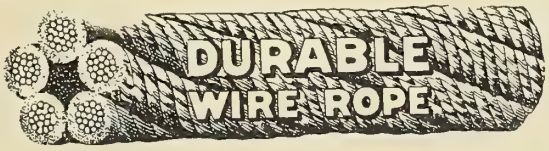
Benedict Nickel Seamless Tubing.—The seamless tubing manufactured by the Benedict and Burnham Mfg. Co., Waterbury, Conn., is particularly well adapted for railings as well as for other uses, because, as stated in the catalogue, it requires less care, and there is no plated surface to wear away. Railings on board yachts and vessels are so subjected to atmospheric conditions that they would corrode at once, but this tubing renders this impossible. This company is distributing a neat catalogue giving full information regarding this seamless tubing, copies of which can probably be had upon application.

Lunkenheimer Pan-American Exhibit.—One of the handsomest, most complete and interesting exhibits at the Pan-American Exposition is that of "The Lukenheimer Company." This is installed in section 46 in the Machinery and Transportation Building. Visitors to the Exposition who are interested in a line of superior brass and iron steam specialties and engineering appliances should not fail to visit this exhibit. Mr. F. L. Swanberg, who is in charge, would be pleased to explain the merits of these specialties. Here can be seen a complete line of regrinding valves, handy valves, lever throttle valves, pop safety valves, plain whistles, chime whistles, fire alarm whistles, injectors, sight-feed lubricators, oil cups, grease cups, glass cups, glass body oil pumps and a complete line of brass valves and fittings for marine work in medium and extra heavy patterns. The "Lunkenheimer" specialties were awarded three highest medals at the Exposition Universelle, Paris, 1900. The headquarters of the Lunkenheimer Company are in Cincinnati, and there are branches in New York and London.

DURABLE WIRE ROPE.

Combines all the good qualities of Manila and Wire rope. Will outwear both.

Address



Waterproof and Rustproof.

THE STRENGTH OF WIRE, THE ELASTICITY OF MANILA.

THE DURABLE WIRE ROPE CO., 288 Congress Street, Boston, Mass.

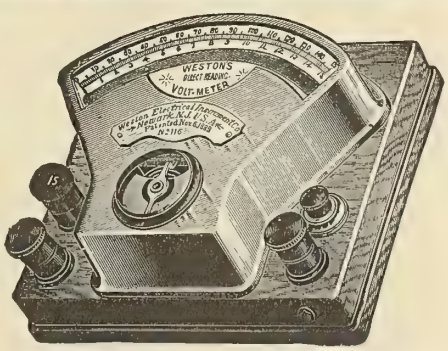
WESTON STANDARD PORTABLE DIRECT-READING

Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
Waverly Park, Essex County, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

Crescent Reversible Propeller Wheels.—The Superior Gas Engine Co., West Superior, Wis., makes the following claims for its feathering or non-feathering reversible propeller wheels: That they are cheap, durable, simple, compact, effective, have independent and interchangeable blades and parts. For boats that are not fitted with sails, the non-feathering wheels are recommended, while for boats fitted with sails but provided with steam, gas or other engines the feathering wheel is recommended. These propellers are made with two, three or four blades, and if one blade is broken it does not injure the other blades or the hub. It is claimed for the wheel that it is so pitched by means of the operating lever as to work the boat at anything from full speed ahead to full speed astern without jar and furnishing no power whatever when the lever is on the center.

Leschen Wire Rope.—The A. Leschen and Sons Rope Co., St. Louis, Mo., whose New York office is at 92 Center street, has received a letter from the Bedford Quarries Co. referring in the highest terms to the Hercules brand of wire rope manufactured by the Leschen Company. This letter states that the Bedford Company has used this brand of rope very extensively during the past six years on its derricks, in its quarries, and in its stacking yards, and states that it believes it to be as good rope as can be bought for the use. The Hercules rope can be readily distinguished, as it is made with one red strand. The manufacturers claim that there is no stronger or tougher rope made. The wire is carefully drawn from patent steel made especially for this brand, is tempered in oil, and is uniform in density, texture, strength and elasticity. This company also manufactures a patent flattened strand wire rope, which is claimed to have 150 per cent more wearing surface than ordinary rope. Owing to the number of wires that are at all times exposed to wear in this rope, a comparatively smooth surface is presented and the wear is consequently light upon any one individual wire.

Hair Felt Insulation.——The American Hair Felt Co., 730 Market street, Philadelphia, Pa., issues a little folder regarding hair felt insulation, in which the following claims are made. It is more efficient in every way than any other insulating material known, is more economical, more easily applied and is in more compact form; will not rot or carry flame, gives absolutely tight joints, etc.

An Experience in Lubrication.—An engineer, in writing recently to the Dixon Crucible Co., Jersey City, N. J., stated: "When I see an honest looking advertisement about something that ought to be useful, I usually say, Get some and try it and then you can tell by the results whether it will be useful to you or not. That is the way that I came to use Dixon's pure flake lubricating graphite. My crank pin would heat and still be flushed with the best oil known. I saw an advertisement of Dixon's graphite and sent and got a small sample package. I tried it, using it very sparingly, but the results were astonishing. I then sent for a five-pound can and paid for it myself, and one trouble after another was gotten rid of; the black, mysterious flour has no equal the world over for the speedy cure of all sick and groaning machinery. Last summer I had charge of a large steam plant in New Jersey, and my first instructions were to get down the expense. I was running three lubricators and using exactly seven pints of oil per day. By using less oil I would have the awfulest groans and screeches, so I finally mixed some of Dixon's graphite with the oil, and got to perfection by using 1-4 of a pint on hot water pump, 1-2 pint on feed pump and two pints on engine, or 4 1-4 pints less per day by using Dixon's graphite. Don't try and overdo the thing by using too much graphite, as it will stop up the tubes in the lubricator. I cleaned the three lubricators out thoroughly before using it, and I never had any trouble. I used about one tablespoonful to the pint on bearings, and saved over three quarts per day, and never after had such a thing as a hot box."

Standard Seamless Tube Co.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

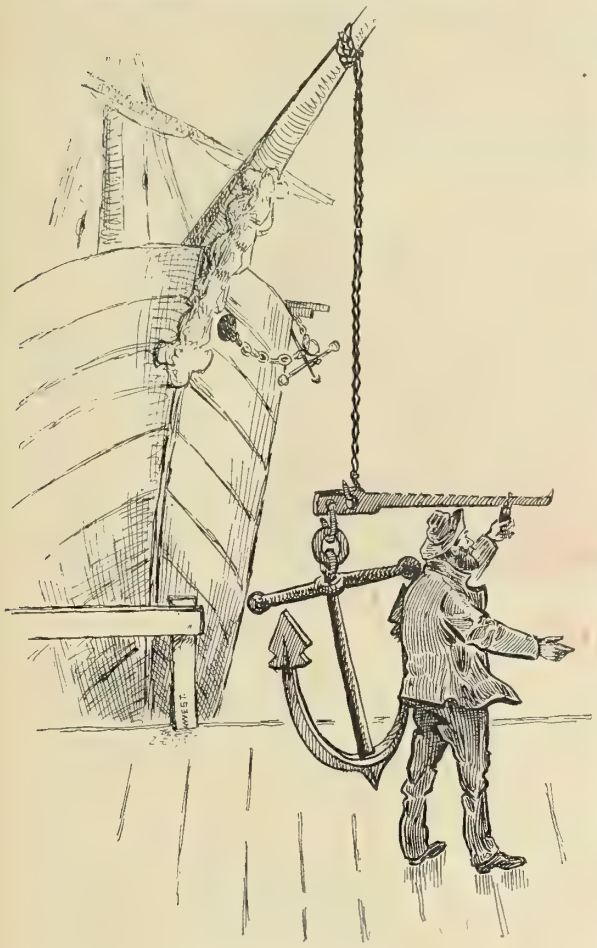
National Tube Company, Selling Agents

SALES OFFICES

Havemeyer Building, New York
95 Milk Street, Boston
Conestoga Building, Pittsburg
267 So. 4th Street, Philadelphia
Western Union Building, Chicago
420 California St., San Francisco

Foreign Office—Dock House, Billiter Street, London, E. C., England

TECHNICAL TERMS ILLUSTRATED.



Weighing Anchor.

The Columbia Steam Trap.—The Watson and McDaniel Co., 146 North Seventh street, Philadelphia, Pa., is meeting with much success in introducing its Columbia Expansion steam trap, which has been designed especially for marine uses. Among the claims made for this trap are that it cannot freeze, is always open when water is at the discharge valve and closed when steam is at the discharge valve, and takes up very little room. A catalogue in which these traps are illustrated and fully described is issued by the company, copies of which can be had upon application.

TREASURY DEPARTMENT,

WASHINGTON, D. C., September 11, 1901.

SEALED PROPOSALS, *on separate forms*, are invited and will be received at this Department until 2 o'clock p. m., Saturday, October 12, 1901 (at which time and place they will be opened in the presence of attending bidders), for the construction of one steam propeller for the United States Revenue Cutter Service for harbor duty at Boston, Massachusetts, to be known while in course of construction or until launched as No. 9, R. C. S., and for one steam propeller for said service, for duty in the St. Mary's River, Michigan, to be known while in course of construction or until launched as No 10, R. C S. Said vessels are to be constructed in accordance with plans and specifications provided by the Secretary of the Treasury, which, together with forms of proposals, contracts, etc., may be obtained upon application to this Department. Bids must be addressed to the Secretary of the Treasury, and be endorsed on the envelope "Proposals for steamers for Revenue Cutter Service." The right is reserved to reject any or all bids, and to waive defects if deemed for the interest of the Government so to do.

O. L. SPAULDING,
Acting Secretary.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

FORE AND AFT COMPOUND WANTED.

A fore and aft compound engine (second hand preferred) is wanted for a steamer of about 60 tons. Send description and price to
FORE AND AFT, care Marine Engineering.

EXPERIENCED ENGINEER SEEKS POSITION.

An engineer of many years experience in both engine and hull work seeks position in shipyard or engineering establishment. Full particulars regarding training and experience can be had by addressing
EXPERIENCED ENGINEER, care Marine Engineering.

EXPERIENCED MECHANICAL ENGINEER SEEKS POSITION.

A Mechanical Engineer of practical experience, especially in a business way, and who is now employed, seeks engagement where hard and conscientious work will better his condition. Can refer to present employer. Address,
MECHANICAL ENGINEER, care Marine Engineering.

TRAVELING SALESMAN WANTED.

Traveling salesman, from 30 to 35 years of age, of ability is wanted. One having Mechanical knowledge and experience, and well acquainted among shipbuilders and dry docks State salary wanted. Give past experience. References must accompany application. Good position for the right man. Address
TRAVELING SALESMAN, care Marine Engineering.

ENGINEERING TAUGHT—

"Hawkins' Educational Works"—practical books for practical men. Sold on monthly payments. 6 volumes in set, delivered complete. Highly approved and standard. Send for description of books and terms.

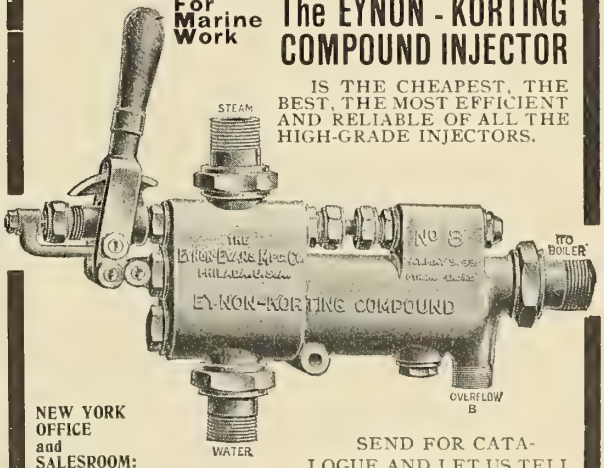
THEO. AUDEL & CO., Publishers,
63 FIFTH AVENUE, NEW YORK CITY.

The EYNON-EVANS MFG. CO.

Engineers, Machinists, Bronze Founders.

For Marine Work **The EYNON - KORTING COMPOUND INJECTOR**

IS THE CHEAPEST, THE BEST, THE MOST EFFICIENT AND RELIABLE OF ALL THE HIGH-GRADE INJECTORS.



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Rainbow Packing

Makes Steam, Flange and Hot Water Joints Instantly

Thousands of Imitators.

No Equal.

Will Hold Highest Pressure.

Don't have to Use Wire and Cloth to Hold

RAINBOW

Can't Blow it Out.

THE COLOR OF RAINBOW PACKING IS RED

See that the Trade Mark (three rows of diamonds in black, connected) extends throughout the entire length of each yard or roll

WILL CARRY IN STOCK

It is an undisputed fact that Rainbow Packing is the only Sheet or Flange Packing in the world that will carry in stock for months and years without hardening or cracking

The Eclipse Sectional Rainbow Gasket

3/8 in.
1/2 in.
5/8 in.
} **For Hand Holes.**

3/4 in.
7/8 in.
1 in.
} **For Extra Large Joints.**

Fac-simile of a 6-inch Section of Eclipse Gasket showing Name and Trade Mark imbedded.

The Eclipse Gasket is red in color, and composed of the celebrated Rainbow Packing Compound. It will not harden under any degree of heat, or blow out under the highest pressure, and can be taken out and repeatedly replaced. Joints can be made in from three to five minutes.

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" 2, L. D. Weeks, 6 Root St., Cleveland, Ohio.
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" 48, Carl V. Hart, 425 Perry St., Sandusky, Ohio.
" 51, Henry Connell, 28 Juba St., Muskegon, Mich.
" 53, Harry Stone, Marine City, Mich.
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" 59, Frank Terry, P. O. Box 36, East Boston, Mass.
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" 91, Martin Joyce, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, Miles W. Gaffney, 309 Stark St., Saginaw, W. S., Mich.
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" 94, George R. Jones, Box 222, Washington, N. C.
" 100, Jas. P. Lynch, Honolulu, H. I.
" 101, Thos. J. Hanlon, 14 Ave. A, Atlantic City, Norfolk, Va.
" 102, Chas. La Bounty, Box 563, So. Haven, Mich.
" 103, C. H. Hall, Box 512, New Berne, N. C.
" 104, J. H. Blumer, Moss Point, Miss.

TRADE PUBLICATIONS.

The Acme Automobile Engine is illustrated in a folder issued by the Rochester Machine Tool Works, Rochester, N. Y. The folder describes concisely the special features of the engine, and other information, which the purchaser of an engine of this type would want to know.

Users of thrust bearings will find an interesting catalogue in the one which has just been issued by the Standard Roller Bearing Co., 2326 Market street, Philadelphia, Pa. The catalogue is well illustrated and nicely printed, comprising sixty-two pages devoted to bearings of all kinds, end thrust bearings forming, perhaps, the most important part of the catalogue. Many illustrations make this part of the text very instructive.

Users of gas engines will be interested to send for a copy of the catalogue issued by the Bridgeport Machine and Motor Co., Bridgeport, Conn., describing "A motor that motes." There are twenty pages in which are fully described the gas engine manufactured by this company, and all of its special features are emphasized. The construction of the engine is explained. There is also considerable information regarding the design of launch hulls, methods of installing motors, etc.

Metal lockers for use on shipboard as well as in shipyards and engine establishments, in wharf buildings. etc., are manufactured in great variety by Merritt and Co., 1026 Ridge avenue, Philadelphia, Pa., and are illustrated and fully described in a booklet now being distributed. Pictures in this booklet show the great improvement in this locker system over the old-fashioned makes. Included in the several varieties of lockers are some which were designed for use in the Navy. Copies of this catalogue can be had upon application.

The 126-page catalogue which is being distributed by the Eynon-Evans Mfg. Co., Fifteenth and Clearfield streets, Philadelphia, Pa., is one of the most complete and well arranged catalogues of steam engineers' specialties that has appeared for a long time. It is handsomely printed in two colors. Among the many specialties referred to are cocks of all kinds, copper castings, condensers, bronze and iron fittings, injectors, jet pumps, lubricators in variety, valves of many kinds, etc. The popularity of this catalogue is demonstrated by the fact that this is the seventh edition.

A general catalogue for ship and engine builders, metal workers, machinists, foundries and others is issued by Merchant & Co., Philadelphia, Pa., known as Merchant's "Red Book." It comprises one hundred and forty pages, which are devoted almost exclusively to anti-friction metal, brass, bronze, copper, yellow metal, zinc, tin and other metals manufactured into all sorts of specialties. Many illustrations show the processes through which many of the specialties pass in the course of manufacture. The catalogue is very complete and comprehensive, and a copy of it should be on file in every ship and engine building establishment.

Our Marine Specialties is the title to the latest catalogue issued by the James Reilly Repair and Supply Co., 229 West street, New York. It comprises nearly fifty pages, and tells of the extensive facilities of this company for manufacturing all classes of engineering specialties, all kinds of copper work and engineers' supplies, electrical equipments, and for the supply of tools and machinery. Attention is also called to the convenience of this company's water front for making repairs to steamships, yachts and tugs, and doing general marine work. A good deal of attention is given in this catalogue to the Quiggins evaporator, which has been installed in a large number of vessels, as shown by the list printed. Other specialties illustrated and described are grease extractors, slip joints, side lights, lubricating devices of many kinds, fusible plugs, deck pumps, and many other specialties of a marine nature.

A brief catalogue and price list is issued by the Norristown Covering Co., Norristown, Pa., describing this company's coverings of asbestos magnesia for steam pipes and other such purposes.

The Swain patent lubricator has an eight-page folder devoted to it, which is issued by W. B. Maull, 26 Cortlandt street, New York. The lubricator is illustrated, and complete information is given in the folder, which tells of the uses of the lubricator.

The horizontal boring machines, milling machines and the many other machines manufactured by the Franklin Machine Works, Philadelphia, Pa., have a neat catalogue devoted to them. Each machine is well shown by excellent engravings, and is concisely described. As several of these machines are particularly adapted for use in engine and shipbuilding establishments, copies will be found very valuable for reference by many of our readers.

Hydraulic jacks is the subject matter of Catalogue No. 61, issued by the Watson-Stillman Co., 204 East Forty-third street, New York. The catalogue comprises about seventy-five pages, neatly bound in paper, and contains many illustrations of jacks of all kinds, and gives a complete description of them with information regarding their application. There are also descriptions of tube expanders, gauges and other specialties, together with a complete list of illustrated sheets issued by this company.

The B. F. Sturtevant Co., Jamaica Plain, Mass., has just published for distribution Catalogue No. 117, which very completely illustrates and describes the motors, generators and generating sets manufactured by this company. Previous publications covering these specialties have been issued in the form of bulletins, and each devoted to a description of a special type. This catalogue presents all of the specialties, and although the Sturtevant Co. has made its reputation by the manufacturing of blowers, this catalogue shows how completely it covers the manufacture of lighting and electrical specialties of small and medium sizes.

We have received from the International Correspondence Schools, Scranton, Pa., a handsome brochure in two colors, announcing that to their already large curricula of one hundred courses they have added the studies of French, German and Spanish. Instruction in these subjects by the International system is conducted almost entirely by means of the Phonograph and the School's specially prepared Instruction Papers. The lessons are sent out in the shape of records and pamphlets—the one a key to the other—each record being a master record bearing the voice of the native instructor. After studying his lesson, both from the pamphlet and the record, until he has thoroughly mastered it, the student recites into the phonograph, using one of the wax cylinders furnished him, and returns it to the schools. Interested parties will do well to send to the schools for their free circular on modern languages, which contains a full account of how they teach these subjects by correspondence.

Ship's Deck Pumps, Bilge Pumps, Triplex Power Pumps.

We make
HAND AND POWER PUMPS
for all purposes.
Send for Catalogue.

The Deming Company,
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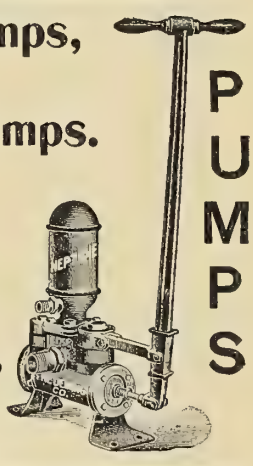


PUMPS

The Hartford Woven Wire Mattress Co.

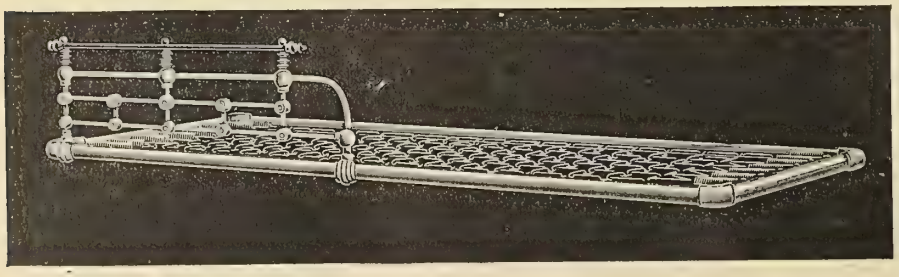
P. O. BOX 363. *618 Capitol Ave., Hartford, Conn., U. S. A.*

MANUFACTURERS OF **Berths Complete,**

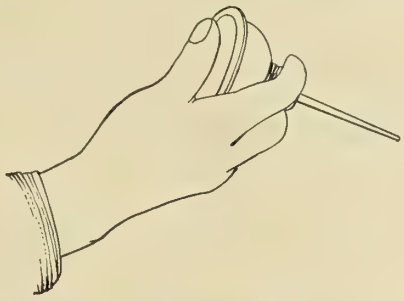
either metal or wood, with woven wire mattress or other spring mattress attached; or

Woven Wire or National Link Mattress only,

for berth bottoms for vessels, steamships, yachts, etc.



We manufacture the most approved articles for these uses, and will furnish anything to specification desired, of any dimensions, and of any irregular form required. Address for any information as above, and mention this journal.



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You can use is

DIXON'S

Pure Flake

GRAPHITE

in an ordinary

SQUIRT CAN.

For valves and cylinders and all bearings there is nothing to equal Dixon's graphite. Sample free.

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N. J.

The Standard Motor Mfg. Co., 150 East 129th street, N. Y., is distributing a catalogue finely printed in two colors, describing this company's gas engines and launches. Pictures are given of a large variety of boats which have been fitted with these engines. The engine is fully described, and pictures are given of the 2, 3 and 4 cylinder type.

Thornycroft Water Tube Boilers is the subject of an exceptionally handsome catalogue issued by John I. Thornycroft and Co., through their New York agents, at 99 Cedar street, Messrs Thorpe, Platt and Co., showing the various battleships, cruisers, torpedo boats and merchant vessels of Europe and the United States, which are fitted with these water tube boilers. This firm is part owner and manufacturer of the Thorneycrott-Marshall water tube boiler, which embraces many points, chief of which is simplicity of construction, permitting the renewal of any single unsound tube without disturbing or having to renew other sound tubes.

Dixon's graphite preparations for steam, gas and electric automobiles, have a special catalogue of sixteen pages devoted to them, which is now being distributed. In the first part of the catalogue there is considerable matter discussing the lubricating qualities of graphite, and the several preparations of it, manufactured by this company, are fully described. Most of the balance of the pages are filled with letters from those who have used these preparations for various purposes in automobiles. Copies can be had from the Dixon Crucible Co., Jersey City, N. J.

Truscott Boats, which include both hulls and gas engines, have a very picturesque catalogue devoted to them. It contains pictures of this company's extensive plant with many interiors, showing many views in the body of the shop, also in the machine and engine shops, together with pictures of a large variety of boats of many types which this company has built. The manner of installing the engines is fully illustrated and a great deal of information is given of all the features of this company's specialties. More detail is published of the engine than is usual. The illustrations include engines from the smallest type up to the two cycle, triple cylinder type. This company's plant is situated at St. Joseph, Mich.

Smooth-On Iron cement for steamships, steamboats, engines, boilers, stacks, pumps and many other uses has a very complete catalogue devoted to it, which is now being distributed by the Smooth-On Mfg. Co., 547 Communipaw avenue, Jersey City, N. J. The several forms of this cement are very concisely described, then each form is taken in turn and the many uses for it are fully shown. Illustrations are given showing the manner in which repair jobs are made and directions for making them. There are many testimonials from engineers and others explaining the manner in which they have made use of this compound. The catalogue will interest every engineer, as it will give much information which will be very valuable for all sorts of purposes.

The Small Tool Catalogue issued by the Pratt and Whitney Co., Hartford, Conn., is one of the most complete and comprehensive, as well as handsomely published catalogues we have seen for a long time, pertaining to the subject. It is 5 by 8 inches in size, and neatly bound in a dark green cover, printed in two colors. The body of the catalogue is the best of the printer's work, and the illustrations are in keeping. The catalogue comprises one hundred and fifty-two pages, four of which form a very complete index to the tools illustrated and described. Among the important specialties are cutters of all kinds, dies for all purposes, gauges in great variety, punches, reamers for all purposes, and taps and special cutting tools of all kinds. There are also several kinds of wrenches. There are very few readers of MARINE ENGINEERING who would not find a copy of this catalogue of much value.

Walworth Mfg. Co., 130-136 Federal St. BOSTON

Specialty of **BRASS VALVES** and Fittings for Marine Construction

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work

Sole Manufacturers of

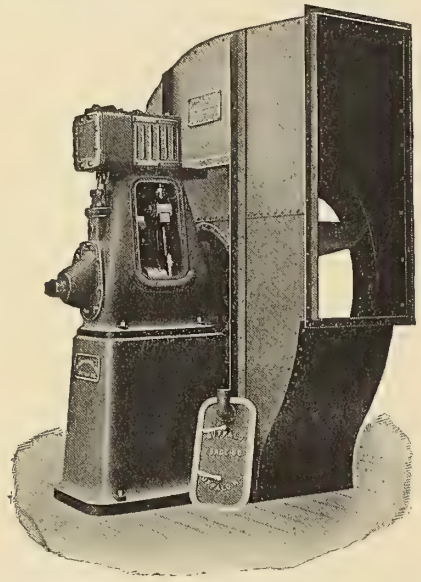
Van Stone Pipe Joint

Which does not Weep under heavy pressure

Send for Catalogue **N. Y. Office: Park Row Building** Prices and Terms on Application

BUFFALO STEEL PLATE FANS

FOR FORCED COMBUSTION



BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

Fire Insurance

Is of less importance than "weather insurance." Few buildings are burned, but all are exposed to the assaults of the elements. Good paint is a sound weather insurance policy.

ZINC WHITE

is the essential ingredient of good paint. A pure oil combination paint in which zinc white predominates is "weather insurance" in its best form.

FREE—Our Practical Pamphlets
"Paints in Architecture"
"The Paint Question"

THE NEW JERSEY ZINC CO.
11 Broadway, New York

The last public address by President McKinley has been issued in a neat pamphlet, and is sent to all inquirers by M. H. Tarbox, Treasurer of the Boston and Lockport Block Co., 142 Commercial street, Boston, Mass. It is issued pocket size, making it very convenient for carrying as well as for reference.

Advertising for Profit, a booklet which was issued some time ago by the Manufacturers Advertising Bureau, 126 Liberty street, New York, has proved so popular that a fourth edition has just been issued. Those of our readers interested in the subject, who have not already seen a copy, will undoubtedly be able to secure one now that the new edition is ready.

The Long-Arm System Co., Cleveland, Ohio, is now distributing bulletin No. 5, describing this company's system of power doors and hatch gears for the preservation of life and property at sea. The "Long-Arm" system is described ,and several illustrations are given showing different types of doors which are used in connection with it. Other illustrations show the several devices used in connection with the system, thus making the catalogue one of particular interest to any one who cares to investigate the subject.

The Deane Steam Pump Co., Holyoke, Mass., is now distributing catalogue No. 6, which is a general catalogue covering all of the pumping machinery manufactured by this company. There are one hundred and ninety-two pages of text, well printed and thoroughly illustrated. Accompanying each type of pump are tables of sizes, capacities, etc. The descriptive matter is very complete, and the quality of the cuts excellent. There is an average of more than a cut to a page, also a number of sections of pumps giving full detail of design, etc. In the back part are tables of various kinds, including the quantitative discharge of one piston, tables of areas of circles, of friction of water, properties of saturated steam, etc. Copies of this catalogue can be had by mentioning Marine Engineering.

Users of electrical goods will find much to interest them in two catalogues just issued by the Ward Leonard Electric Co., Bronxville, N. Y. One of these catalogues is devoted to the subject of field rheostats, and the other to motor speed-controllers. This company issues a variety of other catalogues, each one covering a subject in itself, among them being motor starters, resistance units, circuit breakers, etc.

Stow Multi-Speed Motors, made by the Stow Mfg. Co., Binghamton, New York, are described in a leaflet recently issued. These motors require no rheostatic speed controller, and the claim is made that any speed may be obtained in a simpler, less expensive, more economical manner than with the rheostat. This machine will doubtless give satisfaction in those mechanical operations which require machines to be run at varying speed.

BUSINESS NOTES.

Marine Lamps.—Signal Lamps, as made by Russell and Watson, 141 Main street, Buffalo, N. Y., are illustrated in a small folder recently published. This includes cuts of various patterns, sizes and prices, and also extracts from Maritime Laws concerning collisions at sea which could have been avoided with proper care of the running and side lights.

"Little Giant" Tools.—The Standard Pneumatic Tool Company, Marquette building, Chicago, Ill., has been meeting with more than usal success lately in extending the sale of its "Little Giant" pneumatic tools. The new design of chipping and caulking tools has made an unusual record in the quality of its work, both in the length and size of chips which it cuts off. Full particulars regarding all the tools which this company manufactures can be had from the main office in Chicago, or from the New York office at 141 Broadway.

TWO PRIZES

Of Fifteen and Ten Dollars Each.

Almost every engineer has had an experience of some kind with a breakdown of main engine, boilers, or other machinery, which required much skill in making repairs.

Information regarding such emergency repairs is of great interest to engineers, and in order to give opportunity for an exchange of such experiences, we offer two prizes.

FIRST PRIZE

Fifteen Dollars for the Best Story.

SECOND PRIZE

Ten Dollars for the Next Best Story.

All that we ask is that the facts be given as completely and fully as possible. We will write them up. These facts should be accompanied by sketches or drawings giving dimensions and other information. Pencil sketches will be satisfactory if made with a little care.

The prizes will be awarded having in view the completeness of the matter furnished and the clearness of the description and drawings. Further information, if desired, can be had upon inquiry.

MARINE ENGINEERING 309 BROADWAY NEW YORK.

NEW PIPE CUTTING PLANT.—Crane Co., New York, a branch of Crane Co., Chicago, manufacturer of valves, fittings, pipe, etc., has added to its already large quarters a plant for the cutting, threading and flanging of large and small pipe and for pipe bending. It is located at 497 to 505 Cherry street, and being directly on the East river, and very easily accessible to lighters, it is in an exceptionally convenient location for handling heavy work. The building is 125 feet by 100 feet, the main shop being 110 feet by 63 feet, and devoted to the cutting, threading and flanging of large pipe. The rear shop is devoted to the handling of small pipe and to pipe bending. There are thirteen pipe machines in the main shop and, in addition to these, there are machines for screwing up flanges of all sizes and facing lathes for refacing flanges after they are screwed on. Its convenient location and large and distinctly modern equipments make it fully equal to any shop in the East for the handling of pipe work and, particularly, sketch work, which is made a specialty.

STEAM PUMP CONVENTION.—The convention of representatives of the Union Steam Pump Co., Battle Creek, Mich., was well attended by members from the various sections of the United States, Canada and Europe. The convention was held September 24, 25 and 26 at Battle Creek, Mich. Delegates met in the assembly room of the company, Mr. Chas. A. Allen, manager of the company, in the chair. The following subjects were discussed: Condensations and How to Use Them; Saw Mill and Sugar House Work; Air and Water Lifts; Marine and General Trade on the Atlantic Coast; Sinker and Mining Work; Jet Condensers and Their Use. At the second day's session the following subjects were taken up: Mining Districts of Michigan; Paper Pulp Mills of Wisconsin; Outside Packed Plunger Pumps; Pumps for Creamery Work; Breweries and Distilleries; Economy in and How to Handle Hot Water; Lake Work; Irrigation in the Arid District and Oil in California; Report on Texas; Tales of Woe and How to Cure. There were many social events for the entertainment of the delegates, but, much to the surprise of every one, all seemed to have made a special effort to gather all the information possible regarding the machinery they were handling. The convention in all of its particulars was successful beyond the most sanguine expectations of the promoters and the delegates.

Westinghouse Direct Current Machinery

Westinghouse Alternating Current Machinery

WESTINGHOUSE ELECTRIC and MANUFACTURING CO.

Pittsburg, Pa.

OFFICES IN ALL PRINCIPAL CITIES IN U. S. and CANADA.

Marine Installations

Shipyard Installations

61 D2

Havens' Fountain Ruling Pen.—The popularity with which the Havens' Fountain ruling pen is being received in the cities of the east and as far west as Chicago and St. Louis, is a testimonial of the usefulness of this instrument. Draftsmen have long felt the want of a fountain ruling pen that is durable and will not clog, and are delighted to find that this pen lives up to its guarantee. It is manufactured and sold by H. P. Havens, 1524 Chestnut street, Philadelphia, Pa.

Consulting Engineer.—John Haug, who has held the position of Engineer Surveyor to Lloyd's Register of Shipping for over twenty years, will retire at the end of the present year, and devote his entire time and attention to practice as naval architect and consulting engineer and surveyor in Philadelphia. He will also be prepared to furnish designs of ships and machinery, superintend new construction and repairs, and act as expert in marine insurance and all matters pertaining to shipping. His present address is 206 Walnut place.

Engineers' Tool Chest Free.—The Eagle Oil and Supply Co., 104 Broad street, Boston, Mass., is adopting a novel method of introducing its specialties to engineers in asking them write for information in regard to Premium No. 21 in its premium book. It offers an engineers' tool chest free. Mention Marine Engineering when writing and catalogues of its various specialties will be sent free, with the assurance that prices are as low, and quality as good, as can be made.

Steam Traps.—Expansion Steam Traps are described in a 40-page catalogue issued by the Watson and McDaniel Co., 146 North Seventh street, Philadelphia, Pa. The Columbia Trap is always open when water is in the discharge valve and closed when steam is at the discharge valve. The full sizes of valve openings give a large drainage capacity with rapid discharge of condensation, and it works equally well with high or low pressure steam. One of the reasons that it is especially recommended for marine use is that it takes up very little room.

"Benedict-Nickel" Seamless Condenser Tubes

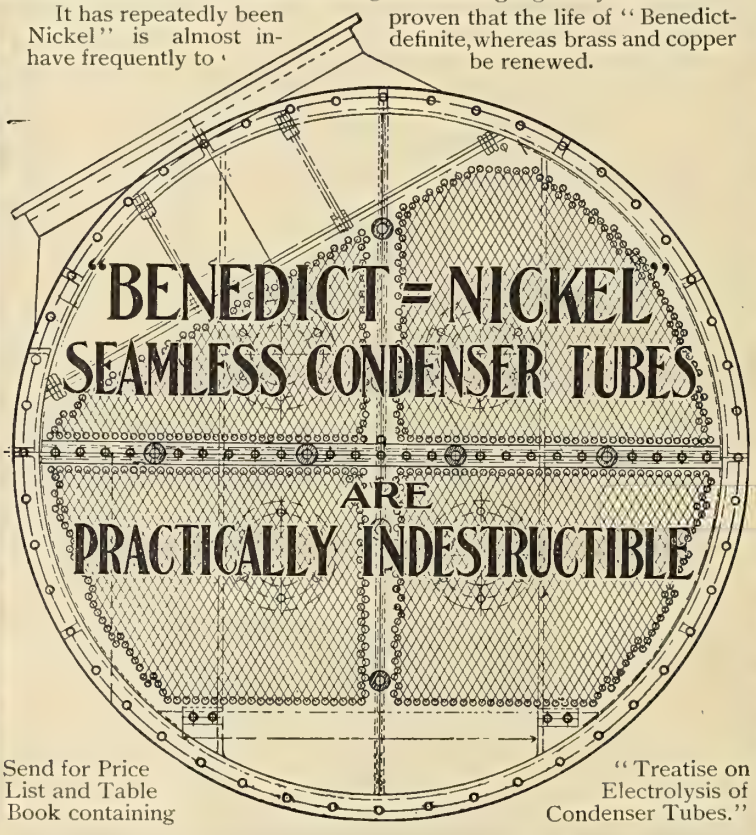
contain all the elements for resisting Electrolysis that brass or copper in themselves lack.

They contain no zinc nor any other weakening metal.

The process of manufacture gives them a spiral formation which renders them perfectly homogeneous and practically indestructible.

Being stronger than brass or copper, tubing of thinner gauge may be used.

It has repeatedly been proven that the life of "Benedict-Nickel" is almost indefinite, whereas brass and copper have frequently to be renewed.



Send for Price List and Table Book containing "Treatise on Electrolysis of Condenser Tubes."

We are also among the largest manufacturers of seamless brass and copper tubing, and the *only* manufacturers in the United States of this tubing hot rolled from solid cylindrical billets—the process used in the manufacture of "Benedict-Nickel."

Tobin Bronze has a wide reputation for tensile and torsional strength, toughness and uniformity of texture. It was used in sheathing the Vigilant (1893), Columbia (1899), Independence (1901) and Constitution 1901).

We sell Tobin Bronze at manufacturers' prices.

BENEDICT & BURNHAM MFG. CO.

New York, 253 Broadway WATERBURY, CONN. Boston, 172 High Street

V. WARING, N.Y.

More Lukenheimer Honors.—The Lukenheimer Company, which has received many high awards at national and international expositions, has carried off high honors at the Pan-American Exposition by being awarded a gold medal on valves, lubricators and engine fittings.

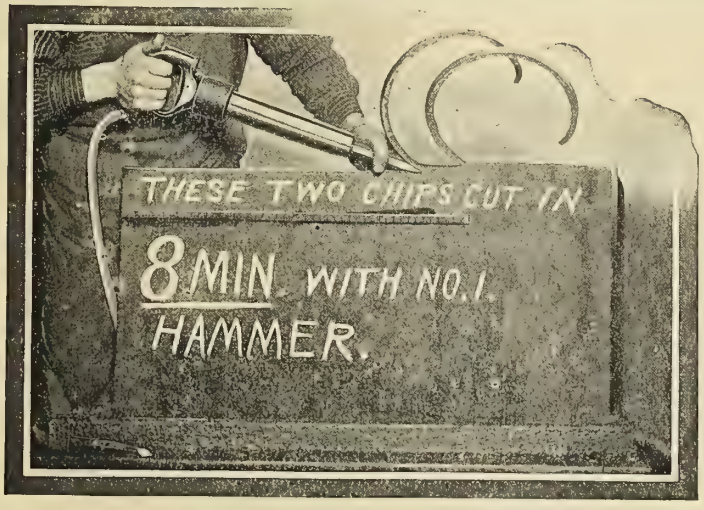
Weatherproof Paint.—John Mair and Sons, Philadelphia, Pa., describe their Japan compounds in a 4-page folder. Their varnishes possess the principal requisites for good varnishes, namely: Elasticity, and weathering qualities. These compounds are used for both interior and exterior purposes.

Ship Building Facilites.—The Bell Engineering Works, Buffalo, N. Y., announce that they have increased facilities for building steam tugs, yachts and vessels of every description, also marine engines. They make a specialty of steam hammers and manufacture the well-known Bell speed and towing wheels.

Buffalo Forge Company.—Two gold medals and a silver medal have been awarded to the Buffalo Forge Company, Buffalo, New York, for the excellence of apparatus exhibited at the Pan-American Exposition. One gold medal is for a 500 horse power, high speed, compound engine; the other gold medal for the Buffalo fan system of heating and ventilating. The silver medal was for the Buffalo hand punches and shears, forges, induced draft apparatus and blacksmiths' drills. In other directions, the Buffalo Forge Company has been receiving high compliments for its specialties. Two years ago this company installed a mechanically induced draft plant in Japan, and notice has just been received that there has been a reduction of 15 per cent in the coal bills because of the use of it. Through its London office, at 39 Victoria street, London, S. W., the Company has been given a contract for apparatus to be used for heating and ventilating the machine shop, foundry stores and other buildings of the great Westinghouse plant under construction near Manchester, England. The New York office of the Buffalo Company, at 39 Cortlandt Street, is now under the charge of J. I. Lyle.

New Penberthy Specialties.—The Penberthy Injector Co., Detroit, Mich., reports an unusually heavy season's business. It has been compelled to put in considerable additional machinery, and is at present arranging to put in ten new lathes to meet the increasing demand for its goods. It now has on the market, in addition to its well known and deservedly popular injectors, a complete line of oil and grease cups, water gauges, etc., and is just entering upon the manufacture of a low water alarm, and a force feed lubricator.

Boiler Compounds.—The Engel and Fagersten Chemical Co., 1702 Wabash avenue, Chicago, has made a chemical preparation designed to have electrolytic property for transforming the insoluble compounds in deposits from water, into soluble compounds, thus preventing the scale formation under boilers. The principal, as stated, is as follows: Galvanic and selective action of the different parts of the boiler, or the scale-forming matter in the water, if neutralized by suitable means, will prevent the crystalization of the scales, and hold the scale-forming matter of the water in suspension as mud, and will also prevent corrosive action. This treatment produces an intermittent white translucent film on the internal iron of the boiler under steam pressure, thus protecting the iron and preventing any crystals from attaching themselves to the surface. It will be seen that this process is one that has never heretofore been followed. The directions are simple. Put one ounce of the preparation into every ton of water used, if there is a reservoir or tank. If not, put oil cup above the suction pump to hold about as many ounces as tons of water that you will evaporate during the day. The action of the "Neptune" is twofold, viz.; To prevent the crystalization of the scale-forming matter, holding it suspended as mud; second, to neutralize any corrosive agent in the water, thus preventing corrosion. The composition is an odorless, almost colorless liquid, containing no acid or volatile matter. The company has received several large orders from the North German Lloyds S. S. Co., for compound, also from the United Fruit Co., and other steamship lines.



COMBINED LENGTH OF THE TWO CHIPS, 45 INCHES.

"Little Giant"
Pneumatic Hammers

USED IN PRINCIPAL SHIP AND NAVY YARDS THE WORLD OVER

Having no delicate parts of vibration they cause the operator no annoyance whatever. If you want a hammer that you can depend on—one that will do good work and do it quickly—order a "LITTLE GIANT." They never disappoint. The illustration shows the advantage of these tools over hand labor in chipping steel plate castings. A proportionate saving can be effected by their use on all classes of riveting, calking, beading, etc.

SIZE	ADAPTED TO
No. 00	(Long Stroke) Riveting up to one inch.
" 0	Light riveting.
" 1	Extra heavy chipping.
" 2	Chipping and heavy calking.
" 3	Light chipping, calking and beading flues.
" 4	Beading flues and calking.
" 5	Beading, light calking and chipping.
" 6	Light chipping.

We Make a Specialty of Installing Complete Air Plants.

WRITE FOR CATALOGUE TO

STANDARD PNEUMATIC TOOL CO.

Manufacturers of Air Drills, Hammers, Reversible Flue Rolling, Reaming, Tapping and Wood Boring Machines, Motor Chain Hoists, and Pneumatic Tools and Appliances of Every Description.

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Marquette Building, CHICAGO

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141 Broadway, NEW YORK

GOLD MEDAL AWARDED.—The American Steam Gauge and Valve Mfg. Co., Boston, Mass., has been awarded a gold medal at the Pan-American Exposition on gauges, pop valves, indicators and engineering specialties, the award covering the whole exhibit.

MORRIS MACHINE WORKS.—The Morris Machine Works, Baldwinsville, N. Y., had a very fine exhibit of centrifugal pumps and marine engines at the Pan American exposition in Buffalo, and have just been awarded a gold medal for the excellence of the exhibit.

BOILER STAYBOLTS.—We are informed by the Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, that owing to its improved methods, it is enabled to roll bars of any size inside diameter, 8 to 10 feet long, and that it is producing a superior article of solid, refined charcoal iron bolts, made especially for the marine trade. This gives purchasers the choice of either solid or hollow bolts, every bar being guaranteed.

PAUL S. REEVES AND SON.—A gold medal at the Pan-American Exposition in the Department of Mines and Metallurgy for brass and bronze castings and babbitt metals, has been awarded to Paul S. Reeves and Son, Philadelphia, Pa. Their exhibit was placed in the Ordnance Building, as most of the large castings exhibited were of the nature that would interest shipbuilders and builders of heavy ordnance. The exhibit included one of ten torpedo spoons recently made for the United States Navy of Reeves' Tubal Manganese Bronze; a brass cylinder, 14 1-2 feet long by 28 inches diameter and 1-2 inch thick, without flaw or blemish of any kind; large and small propeller blades, and a general assortment of acid resisting bronzes, made for use in the mining regions of this country, where mine water shows acidity. Tests of the Tubal Manganese Bronze showed the following results: Ultimate tension strength, 80,000 pounds; elastic limit, 32,000 pounds; reduction of area, 29 per cent. This company also received the silver medal at the National Export Exposition held at Philadelphia in 1899, which was the highest prize awarded by that Exposition.

VESSELS CLASSIFIED.—Vessels recently classed and rated by the American Bureau of Shipping, 66 Beaver street, New York, in the "Record of American and Foreign Shipping," are as follows: Screw "El Dia," Screw "Philadelphia," Schooner "Arthur Seitz," Schooner "El Dorado," Schooner "Cassie F. Bronson," Schooner "Eva B. Douglass," Schooner "William H. Yerkes," 3 masted schooner "Charles K. Buckley," 3 masted schooner "Emily I. White," 3 masted schooner "W. H. Dix," 3 masted schooner "Warren Adams" and British Screw Haverford." American Screw "Hydrographer," Schooner "Baker Palmer," Schooner "Sallie C. Marvel," etc.

COMBINED AIR AND CIRCULATING PUMP.—One of the most troublesome as well as the most necessary pieces of mechanism aboard a steam vessel of any kind is the air pump. In the ordinary steam actuated pumps they are liable to trip up and to the ordinary layman it is next to impossible at times to tell what is the matter, and after fooling away hour after hour it becomes necessary to send after the pumpmaker's expert and even then the difficulty is not always overcome. To overcome the above difficulties, Mr. G. H. Waters, Assistant Master Mechanic of the Pennsylvania Railroad Marine Shops, has designed a pump so simple, compact and light as to be easily grasped by the most inexperienced. Any engineer can take care of the simple engine that is used to drive both pumps, and the centrifugal end is too well known to require any explanation or comment. The air pump end is driven from the fly wheel of the engine and by removing the bonnets on the sides all the valves can be instantly examined. On a test with the pumps connected up to a barrel and the centrifugal and throwing a solid body of water through a 6-inch pipe and the air pump connected up with a 3-inch pipe about 6 feet long, a vacuum of 26 inches is steadily maintained with the engine making 90 revolutions. The pumps are manufactured by the F. A. Verdon Co., Fourteenth and Hudson streets, Hoboken, N. J.

STANDARD SEAMLESS TUBE CO.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. Compressed Air and High Steam Pressures.

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

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TECHNICAL TERMS ILLUSTRATED.

Firing Implements.

Sprague Specialties.—The Sprague Electric Company, 527 West Thirty-fourth street, New York, has been obliged to run the New York factory at night for some time to meet the demand for its flexible conduits for interior wiring. The flexible products are very popular and will continue to enjoy the reputation for superiority that the Sprague Company's conduits always have enjoyed. The superior qualities of the Greenfield flexible steel armored conductors and cords are simplicity of installation, thorough protection of wire and insulation from mechanical and other injury, and high grade insulation at low cost. The following officers of the Sprague Company have been elected for the ensuing years John Markle, president; Edward C. Platt, first vice-president; Allan C. Bakewell, second vice-president; Harry R. Swartz, secretary and treasurer.

A Model Smith Shop.—The modern, up-to-date smith shop in a large manufacturing plant is something more than a mere collection of forges. As exemplified in recent important installations made by the B. F. Sturtevant Co., Boston, Mass., it includes not only the forges with the necessary hoods but a pressure blower with the required blast piping to all of the forges, and an exhaust fan for the removal of the smoke through another system of piping. This latter feature represents one of the latest improvements, the value of which is demonstrated by the clear, smokeless atmosphere which is thus maintained within the shop. Complete equipments of this character have recently been introduced by the above named company for the New York Shipbuilding Co., Camden, N. J.; Chicago and Great Western Railway, Owelwin, Ia.; H. K. Porter Co., Pittsburgh, Pa.; Colorado Southern Ry., Denver, Colo.; New York Navy Yard, Brooklyn, N. Y.; Hannibal and St. Joseph R. R., Hannibal, Mo., and the Wellman-Seaver Engineering Co., Cleveland, Ohio.

Wood Fire-Proofing.—The American Wood Fire-Proofing Co., of New York, makes all kinds of wood non-flammable by a thorough fire-proofing system. The Board of Examiners, appointed by Secretary of the Navy in 1898, after extended tests, reported that this system was equal to any processes for making wood non-flamable. The wood is placed in cylindrical chambers or digesters built of heavy steel, the chamber is then closed and steam at low-pressure is first admitted, the charge submitted to a moist steam bath for many hours thus loosening the dried saps, which have remained in the wood, and then a powerful vacuum pump is applied to draw out the saps and juices, leaving a finely divided cellular structure. The acids are then neutralized, and the fire-proofing solution pumped into the chamber, the absorption and saturation being assisted by the partial vacuum. A pressure of 80 to 200 pounds per square inch is then applied until this absorption is complete.

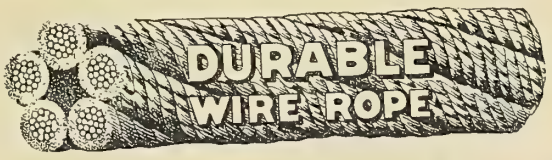
All about the Indicator

HAWKINS' STEAM ENGINE INDICATOR CATECHISM is a practical, up-to-date treatise, and is a valuable book for all marine engineers. Gives full instruction how to use an Indicator with best results. Price, $1 00, postpaid, to any address. Money refunded if not satisfactory. Send for catalog.

THEO. AUDEL & CO.
63 5th Ave., NEW YORK

DURABLE WIRE ROPE.

Combines all the good qualities of Manila and Wire rope. Will outwear both.
Address



Waterproof and Rustproof.

THE STRENGTH OF WIRE, THE ELASTICITY OF MANILA.

THE DURABLE WIRE ROPE CO., 288 Congress Street, Boston, Mass.

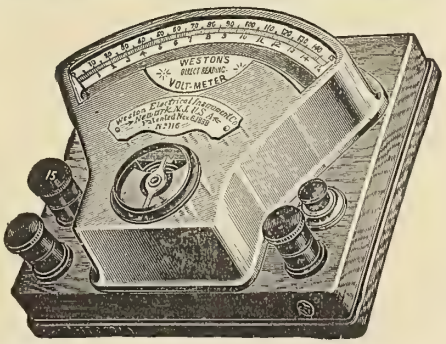
WESTON STANDARD PORTABLE DIRECT-READING

Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
Waverly Park, Essex County, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

The Peerless Spiral Piston and Valve Rod Packing

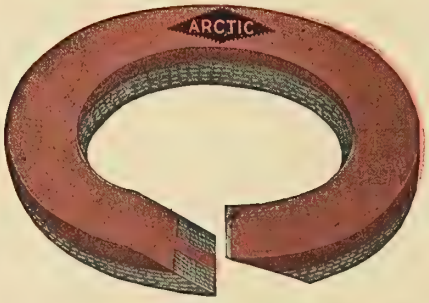
It will hold 400 lbs. of steam

Once tried always used

Will run twelve months in high speed engines

Arctic Packing

To be used exclusively for packing Ammonia Pumps



This packing is made in several hundred sizes

This packing is specially constructed for ice machine service, of layers of rubber and plies of duck which are so arranged and laid as to best resist the actions of ammonia, cold and heat.

The duck is a specially made duck, frictioned with an entirely new compound heretofore unknown to the rubber trade, and the core and back is of the celebrated Rainbow Packing compound, which is specially adapted to resist ammonia, cold and heat.

This packing is constructed on a strictly scientific basis, and the results obtained thus far have demonstrated fully its value for ammonia packing.

This packing is made in several hundred sizes. The rings may be slipped onto the rod very readily.

The usual rule is to be observed in giving measurements, the depth and width of stuffing box and size of piston rod, in order to get the size desired.

Sole Manufacturers of the

Celebrated Rainbow, Eclipse Sectional Rainbow Gasket, Hercules Combination and Honest John Packings.

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" 103, C. H. Hall, Box 512, New Berne, N. C.
" 104, J. H. Blumer, Moss Point, Miss.

TRADE PUBLICATIONS.

The first 1902 calendar which we have received is now ready for distribution by David Kahnweiler's Sons, 437 Pearl street, New York City. Copies can be had by mentioning MARINE ENGINEERING.

Pneumatic Hand Tools are illustrated in a handsome 48-page catalogue published by the Cleveland Pneumatic Tool Co., of 74 Franklin street, Cleveland, Ohio. They include pneumatic caulking, chipping and beading hammers, for both heavy and light service, and pneumatic riveting hammers.

The Niagara Boiler Tube Cleaner, made by the Sherwood Mfg. Co., Buffalo, N. Y., is described in an illustrated folder, which contains also the list of some of the users of this tool. The essential features are scrapers driven by an inclosed turbine, all of which is inserted in the tube and driven by pneumatic power.

The Perfected Ship Log is the name of a new log which has been put on the market by the Nicholson Ship Log Co., Cleveland, O., and which is fully described in a neat pamphlet now ready for distribution. This log is well illustrated in the catalogue, showing fully its application and the manner in which it operates.

A treatise on the steam injector, its uses and abuses, has been published by the Lee Injector Mfg. Co., 101 Abbott street, Detroit, Mich., and copies are now ready for distribution. Any engineer, or other reader of MARINE ENGINEERING, who wishes a copy will have one mailed free of charge by referring to MARINE ENGINEERING. The booklet tells a good deal about the injector, how it is constructed, how to connect it, and gives other useful and valuable information.

Shipbuilders' tools in great variety are fully illustrated and well described in a new catalogue which has just been issued by the Cleveland Punch and Shear Works Co., Cleveland, Ohio. This company makes a specialty of tools for ship and boiler builders. The tools shown in the catalogue include punches, shear rolls, plate planers, bending machines, cold saws, lever and screw feed post drills, etc. Every shipbuilder as well as every boiler maker should have a copy of this catalogue on file.

Supplies for vessels, railroads and mills are illustrated in a handsome leather bound catalogue, No. 30, issued by George B. Carpenter and Co., Chicago, Ill. This catalogue comprises 450 pages. The line of goods used for marine purposes covers ship chandler's stores, cordage, oakum, naval stores, tackle blocks, cotton duck, general marine hardware, hose, belting, packing, rubber goods, flags, wire rope, contractor's supplies, hoisting machinery and, in fact, all hardware and apparatus which is needed in the engine and hull department. In addition to this extensive catalogue this company publishes a revised price list covering the goods described, which is as complete as any publication that has come to our notice, taking up, as it does, the size and price of all of the goods.

The M. T. Davidson Improved Steam Pumps and Hydraulic Machines are fully illustrated and described in a large catalogue embracing the various kinds and sizes of pumping machinery. This catalogue gives sectional views of the pumps, showing valve gear and inside mechanism. As special pumps are made for each and every required service, there are several patterns for high pressure boiler feed, fire, mining, light service, tank and circulating water, and tannery boilers. Special vertical pumps are made, also combined automatic feed pumps and receivers, pumps for artesian wells, independent air pump and condensers, combined air and circulating pumps with surface condensers, vertical marine air pumps both single and twin pattern. At the end of the catalogue are several pages of useful information relating to hydraulics and steam. M. T. Davidson's New York office is at 141 Broadway, where copies of the catalogue can be had.

A neat engraving in the form of a poster is issued by the H. B. Smith Machine Co., Smithville, N. J., showing the large and fine exhibit which this company made at the Pan-American exposition; also reproductions of the gold medal awarded this company for superior excellence of wood working machinery.

The Pneumatic Tools manufactured by the Chicago Pneumatic Tool Co., whose general office is in the Monadnock Block, Chicago, are described and illustrated in a very handsome book issued by this company. The various hand tools with pneumatic drive are shown, and engravings are given representing the various tools in service. These tools are used for riveting boilers, steel car frames, steel car construction in bridge and structural work, in caulking plates used in water tight construction, on shipboard, ship work, built up pipes. boilers, etc. The Boyer portable riveters of various forms are also illustrated, photographs being taken of the machine while in use in various forms of structural work. These riveters are used extensively in many of the large shipyards of this country and abroad. The company has built riveters with reach up to 16 feet. The Boyer piston air drills of various sizes are illustrated while in use in working both metal and wood. This drill has many special applications, and by special attachments can be used for deck boring, side light cutting, for boring cylinders, etc. A spraying device is manufactured by this company by which metal and wood can be thoroughly painted. Pneumatic hoists, cranes and trollies, air compressors of all sizes are included in the output of this company.

Another immense book, almost as large as a dictionary, and corresponding with the other publication on metal working and wood working machinery, has been issued by Manning, Maxwell and Moore, 85 Liberty street, New York City. The book is 10 by 13 inches in size, bound in heavy board cover and comprises over 1,000 pages. It is devoted exclusively to steamship, railway, machinist, factory, mill and electric supplies. Every article and tool referred to is illustrated and given a special number with prices, sizes, etc., so that orders can readily be placed by telegraph or mail. In the first part of the book are large engravings of the branch offices of this company in the Park Building, Pittsburg; Williamson Building, Cleveland; 22 South Canal street, Chicago; Betz Building, Philadelphia, and 128 Olive street, Boston. The fact that the index alone covers nearly 40 pages, 3 columns to the page, gives an idea of the completeness of the book. Everything in the line of small tools and supplies that can be asked for is here given. This volume, in connection with the previous one, exceeds anything we have ever seen in the line of a complete and thorough catalogue. As the book weighs several pounds, copies are not for general distribution, but any information regarding it, or any supplies for any of the purposes mentioned, can undoubtedly be had either from the main offices in New York, or from any of the branch offices.

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In Every-thing

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Athol, Mass., U. S. A.

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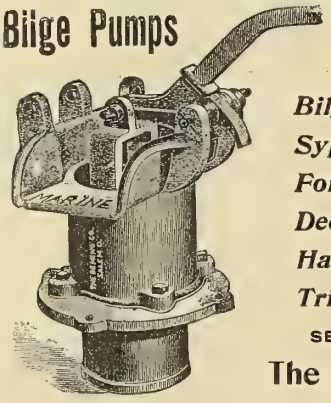

We make a complete line of

Bilge Pumps,
Syphon Pumps,
Force Pumps,
Deck and other Hand Pumps.
Triplex Pumps.

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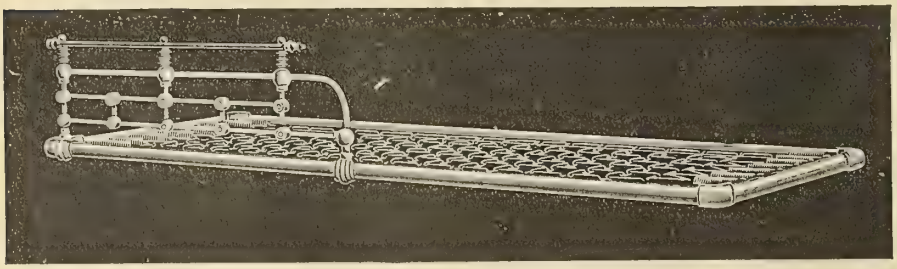
Berths Complete,

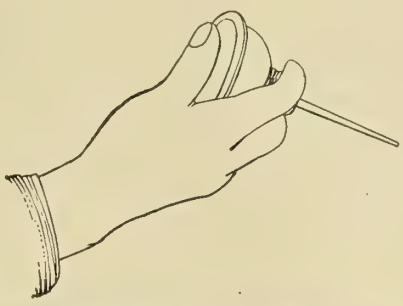
either metal or wood, with woven wire mattress or other spring mattress attached; or

Woven Wire or National Link Mattress only,

for berth bottoms for vessels, steamships, yachts, etc.



We manufacture the most approved articles for these uses, and will furnish anything to specification desired, of any dimensions, and of any irregular form required. Address for any information as above, and mention this journal.



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Pure Flake

GRAPHITE

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SQUIRT CAN.

For valves and cylinders and all bearings there is nothing to equal Dixon's graphite. Sample free.

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N. J.

THE LEADING BOOK OF ITS CLASS.

Used and recognized as the standard by engineers of the merchant marine and chief engineers of the navies of the world.

THE STEAM ENGINE INDICATOR AND ITS APPLIANCES.

A comprehensive treatise for the use of Constructing, Erecting and Operating Engineers, Superintendents, Master Mechanics, Students, etc., describing in a clear and concise manner the Practical Application and Use of the Steam Engine Indicator, with many Illustrations, Rules, Tables and Examples for obtaining the best results in the Economical Operation of all classes of Steam, Gas, and Ammonia Engines, together with original and correct information on the Adjustment of Valves and Valve Motion, Computing Horse-Power of Diagrams, and extended instructions for Attaching the Indicator. Its Correct Use, Management, and Care, derived from the author's practical and professional experience, extending over many years, in the Construction and Use of the Steam Engine Indicator. By William Houghtaling. 325 Pages, 157 Engravings, 20 Full-Page Tables. Handsomely Bound in Silk Cloth. Price, $2.00. Sent postpaid on receipt of price. Illustrated descriptive circular mailed on application.

THE AMERICAN INDUSTRIAL PUBLISHING CO.,
Publishers, Booksellers and Importers,
Box B, BRIDGEPORT, CONN., U. S. A.

Coal handling machinery is now looked upon as a necessity in all large power houses, and the apparatus installed on the Boston elevated railroad by the C. W. Hunt Co., 45 Broadway, New York, is illustrated by a small pamphlet published by this company.

Victor Cooling Towers are described in the handsome catalogue published by Laufketter-Bendit Co., 810 Olive street, St. Louis, Mo. The extensive introduction of condensing plants throughout the country has necessitated the use of cooling towers for cooling the water used in the condensers.

Kingsford Marine Boilers are illustrated in a pamphlet published by the makers, Kingsford Foundry and Machine Works, Oswego, N. Y. Boilers of the various forms are here illustrated, and include the following types: Double return flue, single furnace Scotch, two-furnace Scotch, three-furnace Scotch, two-furnace leg, two-furnace compact, improved Redfield, the Eclipse, single-furnace compact and double return flue marine boilers.

The Sprague Electric Co., whose office is at 527 West Thirty-fourth street, New York City, has issued a pamphlet describing the multiple unit system, which is used in the equipment of all heavy urban and interurban electric train service by which the trolley of any number of motor cars and any number of cars without motors can be operated from any one of several points. The same folder gives illustrations of the engine type generator, the Lundell round type motor, the Lundell electric fans, flexible metallic conduit, etc.

Sturtevant Dry Kilns have catalogue No. 114 devoted to them, and copies are now ready for distribution by the B. F. Sturtevant Co., Jamaica Plain, Mass. This catalogue comprises 86 pages, neatly bound in a paper cover, is very fully illustrated with fine wood engravings, showing a great many types of kilns, and the text is particularly complete. The catalogue contains a great deal of practical information regarding the subject, and the illustrations make it an exceptionally complete and valuable catalogue for reference. Any concern which has to do with handling and care of lumber cannot fail to benefit greatly by a careful study of this catalogue.

The Mason Steam Regulating Devices and Steam Pumps are illustrated and described in detail in a handsome pamphlet issued by the Mason Regulator Co., 6 Oliver street, Boston, Mass. It embraces air pump governors, balance valves, by-pass valves, damper regulators, gravity pump governors and other forms of pump governors, receivers, rheostat regulators and vacuum reducing valves. The working parts of these fittings are described and illustrated. This company also manufactures the well-known Mason improved steam pump for various sizes and capacities. The last pages of this pamphlet are devoted to testimonials from users of the Mason devices, and embrace letters from many prominent manufacturers throughout the country.

Walworth Mfg. Co., 130-136 Federal St. BOSTON

Specialty of BRASS VALVES and Fittings for Marine Construction

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work

Sole Manufacturers of

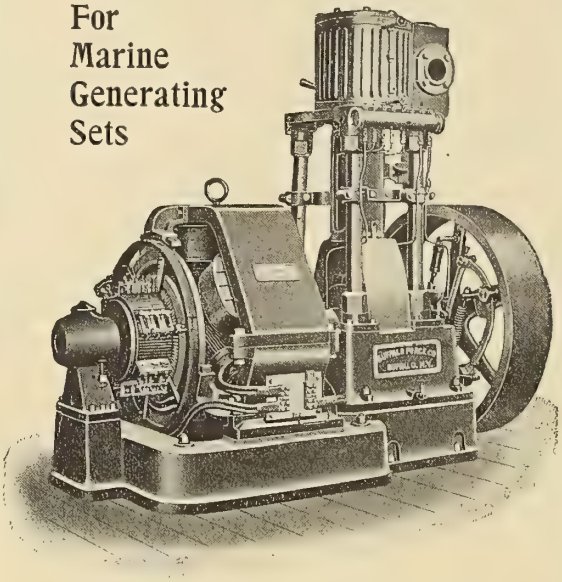
Van Stone Pipe Joint

Which does not Weep under heavy pressure

Send for Catalogue N. Y. Office: Park Row Building Prices and Terms on Application

Buffalo Marine Engines

For Marine Generating Sets



Buffalo Forge Company,

BUFFALO, N. Y.

NEW YORK OFFICE, 39 Cortlandt Street

THERE is one paint, and one only, that stands marine service. That paint is

Zinc White

Ship may be finished without it; but all well finished ships are painted with it. The only white paint that remains white at sea.

READ OUR BOOKLETS:
"The Paint Question."
"Paints in Architecture."
"House Paints: A Common-sense Talk About Them."

THE NEW JERSEY ZINC COMPANY
11 Broadway, New York

The American School of Correspondence, 156 Tremont street, Boston, Mass., has published a pamphlet with facsimile letters from manufacturers throughout the country, stating their opinion of the work accomplished by this school in educating the men who have enrolled therein.

A brief list of Worthington steam and electric pumps, condensers, water meters, etc., is the title of a neat pamphlet which is being distributed by Henry R. Worthington, 120 Liberty street, New York City. The pamphlet contains many illustrations, and the value is told by its title.

Users of flat link chains, chain blocks and diamond expansion bolts, will find a valuable catalogue in the one issued by the New Jersey Foundry and Machine Co., 26 Cortlandt street, New York City, known as catalogue No. 81. We infer that a copy of the catalogue can be had by any inquirer who mentions Marine Engineering.

Asbestos Fire Felt Coverings are described in a small 24-page circular issued by the H. W. Johns Mfg. Co., 100 William street, New York City. There are illustrated the natural asbestos and the various forms of pipe coverings manufactured by this company, showing the various uses to which it can be applied in covering pipes and fittings, boilers and breechings, house furnaces, and, in fact, any surfaces through which the escape of heat should be prevented.

Naval Architect and Engineer.—George Crouse Cook has opened an office at 15 Whitehall street, New York City, as ship draftsman, naval architect and engineer. Mr. Cook has had experience with the Cramp Shipbuilding Co. and elsewhere on this side of the water, Howaldtswerke, in Germany, Professor Biles, in Great Britain and elsewhere. He has just been given the management of a small shipyard, and is ready to make contracts for small sailing and steam vessels.

BUSINESS NOTES.

Starrett Tools.—In order to offer better facilities to the western trade the L. S. Starrett Co., Athol, Mass., has opened a store at 15 South Canal street, Chicago, under the management of Capt. A. T. Fletcher. A full stock of the tools manufactured by this company will be carried, so that orders can be supplied without any delay.

"Little Giant" Pneumatic Tools.—Owing to the great increase in business, it has been necessary to concentrate various offices, and the Standard Pneumatic Tool Co. has moved its general offices from the Marquette Building, Chicago, to its large and fine new works at Aurora, Ill. The present quarters of the company having proved inadequate owing to the unprecedented demand for "Little Giant" pneumatic tools. Now that the new factory is completed; the company is in shape to fill all orders promptly. The office in the Marquette Building will hereafter be a sales office.

McKim Gaskets.—The McKim gaskets, manufactured by McCord and Co., 84 Van Buren street, Chicago, Ill., and 100 Broadway, New York, is an article which should appeal to users of high pressure apparatus of all kinds. The gasket is constructed of a special packing encased in soft rolled metal suitable for the particular service for which the gasket is wanted, and combines the elasticity of the ordinary packing gasket with the strength of the plain copper gasket. The gasket is guaranteed to stand 450 pounds steam pressure, and can be reapplied many times. This feature makes it especially valuable for manhole plates. McCord and Co.'s catalogue has many pages of most flattering testimonials from customers as to the claims made for this packing, and they will be glad to send a copy on request.

LARGELY INCREASED FACILITIES.—The Boston and Lockport Block Co., which has had its headquarters at 142 Commercial street, Boston, for many years, has become so cramped by the great extension of its business that the entire building at 158-160 Commercial street has been secured and is now being fitted up as completely as possible for occupancy. Handsome offices will be on the first floor, and the remaining part of the building will be utilized to the best advantage possible for carrying and displaying a full line of the large number of specialties of this company, such as blocks, trucks, deck pumps, etc. At the same time the company is making a large addition to its factory in East Boston.

THE

McKim Gasket

Cannot Blow Out.

Can be re-applied indefinitely.

Made of packing encased in soft rolled metal, combining the elasticity of one with the strength of the other. All sizes of manhole and hand-hole plates and pipe fittings.

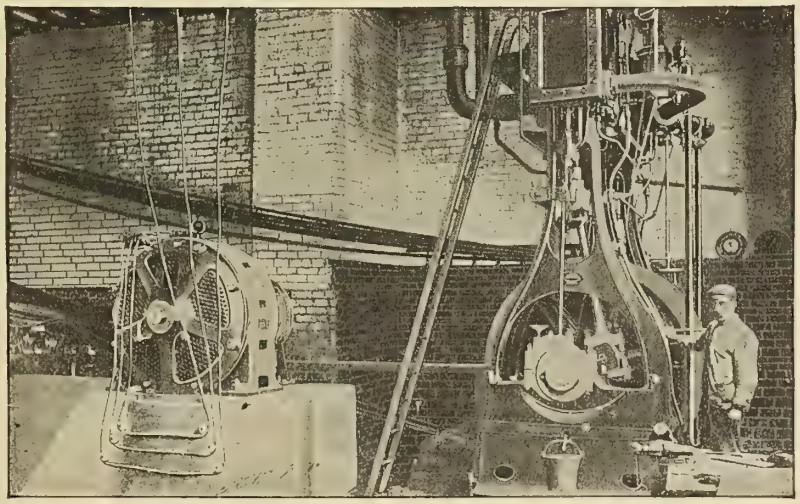
McCORD & CO.

104 Broadway . . . . New York
1471 Old Colony Building . . Chicago

A FINE LAUNCH.—The John Stuart Co., Wollaston, Mass., has recently filled an order for a very complete 38-foot launch in which it has placed a 20 horse power gas engine. This launch was built by a well known real estate dealer in Boston.

EVIDENCES OF PROSPERITY.—Progress and prosperity is evidenced in the extended accommodations which the Manufacturers' Advertising Bureau has occupied since November 1st., at its old location, 126 Liberty street, New York City. The new offices give increased facilities, which have become necessary by the continued growth of the business done by the Bureau, which was established in 1877. The methods of the Manufacturers' Advertising Bureau have received the endorsement of the technical press and many representative manufacturing concerns of this country and Europe, some of which have been its clients for twenty years. Benj. R. Western, the originator and proprietor, was a pioneer in the management of a firm's newspaper work and advertising in what are generally termed the trade journals as a business by itself.

TO REMOVE PAINT.—There is often need of a good material to remove paint on the inside of cabins, staterooms, etc., and one of the most generally used articles for this purpose is called Clyzol, which is absolutely odorless, and which removes paint from the hardest surfaces with the utmost ease. It is being used by some of the ocean liners and yacht owners with excellent results. The manufacturers do not claim that this article is as good for removing varnish as their other product called Varnol, but that has a slight odor, yet it is nothing in comparison to the objectionable odor of many varnish removers. These two articles fulfil the hardest requirements for all varnished or bright work on deck or below. The manufacturers of these articles, Messrs. J. A. and W. Bird and Co., Boston, Mass., also manufacture black enamel paint for hot steam pipes, smoke stacks, etc. This is now in use by many of the large ocean liners, with excellent results. They claim for it that it will hold its lustre under excessive heat and will not grow brittle or crack. Another article of interest to shipbuilders and managers is Aluminite. This is an aluminum paint, ready to apply, which makes a coating of non-corrosive metal on metal, giving a bright silver effect which is not affected by the sea atmosphere or by excessive heat. It has been used on many steam yachts, vessels, etc., and has been adopted by the United States Navy, where it is in constant use. Any one interested in the use of these specialties should correspond directly with Messrs. J. A. and W. Bird and Co., Boston, Mass., mentioning MARINE ENGINEERING.



61 E 2. Westinghouse Induction Motor Replaces Steam Engine on Right.

INDUCTION MOTORS

Westinghouse Induction Motors are rapidly replacing small steam engines. The illustration shows one of the many changes recently made in Harland & Wolf's Shipbuilding Yard.

WESTINGHOUSE ELECTRIC & Mfg. Co., Pittsburg, Pa.

STEAM BOILER EQUIPMENT CO.—The Steam Boiler Equipment Co., 20 West Houston street, New York City, which manufactures the well known hydro-carbon smokeless furnaces, now has as counsel, director and vice president, the Hon. William A. McAdoo, ex-secretary of the United States Navy, he succeeding the late E. P. Gleason.

DAVIDSON PUMPS.—The Davidson Pumps, manufactured by M. T. Davidson, 141 Broadway, New York, are rapidly proving their value for marine service. Many of the new yachts and steamships are equipped with Davidson pumps, condensers and ash ejectors. The new yacht building at W. and A. Fletcher Co.'s yard will have a complete equipment of Davidson pumps. Other recently built boats which have been fitted out with Davidson pumps, condensers, evaporators and ash ejectors are steamships *Apache* and *Arapahoe*, the Chesapeake and Ohio steamer, yachts *Alvina* and *Cangarda*. the National Dredge Co.'s dredge, twelve United States torpedo boats and destroyers, four cruisers and three monitors.

BALDT ANCHORS.—We are informed that the Baldt Anchor Co., Chester, Pa., has received contracts for furnishing nearly all of the anchors for the steam and sailing vessels now under construction, not only along the Atlantic Coast of the United States, but on the Pacific Coast, and on the Lakes, as well as for many vessels in Canada. In addition to these anchors for the merchant marine, we are informed that the anchor has been approved and extensively used by the United States Navy Department and in the Army Transport Service; that during the past six months the company has sold to the United States Navy, 300,000 pounds of anchors, including the largest anchors ever made in this country. The weight of each one of these anchors is given as 16,500 pounds. The Baldt Company also has the order for furnishing anchors for the seven-masted schooner now under construction in the yard of the Fore River Ship and Engine Co., Quincy, Mass. This vessel is being built for Captain Crowley, and we understand that the Captain uses Baldt anchors on all of the vessels of his large fleet.

PLANS AND SPECIFICATIONS FOR CONDENSERS, USING BENEDICT NICKEL SEAMLESS TUBING
"BENEDICT-NICKEL" SEAMLESS TUBING
V. WARING N.Y.

Specify "BENEDICT-NICKEL" Seamless Condenser Tubes —they possess the Greatest Condensing Efficiency.

"Benedict-Nickel" Seamless Condenser Tubes can safely be used of 25% lighter weight than brass or copper tubes of the same diameter. This thinness of gauge results in greater condensing efficiency by reason of greater thermal conductivity.

"Benedict-Nickel" is stronger, stiffer and more durable, than brass or copper.

It positively resists Electrolysis. This has been demonstrated in many cases, especially in that of the American Line Steamship St. Paul. "Benedict-Nickel" Seamless Tubes, used in the Condenser of this steamship, were found in perfect condition after 28 months' service, while the brass tubes which were replaced by "Benedict-Nickel" were badly corroded.

In addition to "Benedict-Nickel" we are large manufacturers of seamless brass and copper tubing.

We would like to place in the hands of everyone interested, our treatise on "Electrolysis of Condenser Tubes." Send for it.

Tobin Bronze, an excellent material for Launch Shafting, Pump Piston Rods, Valve Stems, etc., is sold by us at manufacturers' prices.

BENEDICT & BURNHAM MFG. CO.,

Mills and Main Office, Waterbury, Conn.

New York, 253 Broadway. **Boston, 172 High Street.**

V. WARING, N.Y.

NEW FIRM OF NAVAL ARCHITECTS.—Carl L. Holmer and Walter Goodenough have organized the firm of Holmer & Goodenough, and have opened an office in the Battery Park Building, New York City. They are prepared to undertake the estimating, designing and surveying of hulls and machinery for all classes of vessels. Mr. Holmer has had twelve years experience in Great Britain with leading ship and engine builders, besides a number of years both on the Atlantic coast in practical work, and as chief ship constructor of the Cleveland Shipbuilding Co. Mr. Goodenough has been connected with the Cleveland Shipbuilding Co., the Bath Iron Works and the Maryland Steel Co.

SOME EQUIPMENT IN THE NEW YORK SHIPYARD.—In the main power plant of the shipyard engines were furnished by the Providence Engineering Works, Providence, R. I., fuel economizers by the Green Fuel Economizer Co., Matteawan, N. Y., feed water heaters, by Warren, Webster and Co., Camden, N. J. The stack was built by the Alphons Custodis Chimney Construction Co., 95 Nassau street, New York, the air compressors furnished by the Ingersoll-Sergeant Drill Co., Havemeyer Building, New York, and the electrical equipment, generators, etc., by the Westinghouse Electric and Mfg. Co., Pittsburg, Pa. Feed and other types of pumps were furnished by the Barr Pumping Engine Co., Philadelphia, Pa., Henry R. Worthington, 120 Liberty street, New York, Dean Bros., of Indianapolis, Ind., and others. In the power house is a crane built by Alfred Box and Co., Front, Poplar and Canal streets, Philadelphia, Pa.

Throughout the plant use has been extensively made of Heintz steam traps, furnished by the William S. Haines Co., Philadelphia, Pa.

In the main buildings the machinery is all operated by motors furnished by the Westinghouse Electric and Mfg. Co., Pittsburg, Pa. There are overhead cranes built by Wm. Sellers and Co., 1600 Hamilton street, Philadelphia, Pa., Pawling and Harnischfeger, Milwaukee, Wis., and the Niles Tool Works Co., 136 Liberty street, New York City. Punches by Wm. Sellers and Co., R .D. Wood and Co., 400 Chestnut street, Philadelphia, Pa., Bement, Miles and Co., 136 Liberty street, New York, and by the Niles Tool Works Co. Screw machines by the Cleveland Machine Screw Co., Cleveland, O., bolt cutters by the Acme Machinery Co., Cleveland, O., drills by the Pond Machine Tool Co., 136 Liberty street, New York, the Niles Tool Works Co. and others; steam hammers by Bement, Miles and Co., pipe cutting machines by Eaton, Cole and Burnham, 253 Broadway, New York, plate planers by Wm. Sellers and Co., bending rolls by Hilles and Jones Co., Wilmington, Del., and Bement, Miles and Co., grinding machines by the Landis Tool Co., Waynesboro, Pa., planers by the Betts Machine Co., Wilmington, Del., and others. Boring machines by Bement, Miles and Co., the Niles Tool Works Co., Detrick and Harvey, Baltimore, Md., and Wm. Sellers and Co. Milling machines by the Newton Machine Tool Co., Twenty-fourth and Vine streets, Philadelphia, Pa., Bement, Miles and Co. and Brown and Sharpe, Providence, R. I. Lathes and other tools were furnished by the Bullard Machine Tool Co., Bridgeport, Conn., the American Turret Lathe Co., Wilmington, Del., Lodge and Shipley, Cincinnati, O., Pond Machine Tool Co., the Niles Tool Works Co., the Pratt and Whitney Co., Hartford, Conn., and others. Considerable machinery was also furnished by the J. W. Cregar Agency, the Bourse, Philadelphia, Pa. Gould and Eberhardt, Newark, N. J., furnished geared shapers of different sizes.

A unique feature of the heating plant which was installed by the B. F. Sturtevant Co., Jamaica Plain, Mass., is that the system is at present applied to only one half of the machine shop, and that this half is kept warm while the balance of the shop partakes of the general cooler temperature due to lack of heat. This was accomplished by building between the two parts a partition 8 to 10 feet high and extending across the building. This prevents circulation of air from one part to the other and appears to be as efficient as a partition extending the entire height of the building.

"LITTLE GIANT" Pneumatic Hammers,

Used extensively in the United States, British, French, German, Prussian, Spanish and Italian navy yards, and in the principal ship yards the world over.

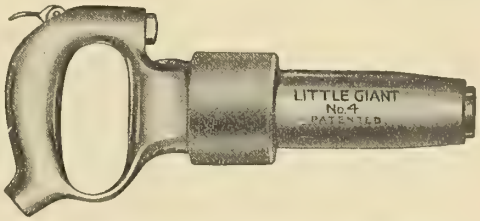
Greatest time and labor-savers of the 20th Century. Unexcelled for all classes of riveting, chipping, caulking, beading, etc. Made in eight different sizes.

"Little Giant" hammers chipping on steel boiler plate.

No Vibration.

No Delicate Parts.

Made to withstand hard service.



Sent on trial. Express paid both ways if not satisfactory. Installation of complete air plants our specialty.

Write for Catalog "F." You will make no mistake if you order a "Little Giant."

Standard Pneumatic Tool Company

Manufacturers of Air Drills, Hammers, Reversible Flue Rolling, Reaming, Tapping and Wood Boring Machines, Motor Chain Hoists, and Pneumatic Tools and Appliances of Every Description.

General Offices and Works
AURORA, ILL.

Eastern Offices, 141 Broadway,
NEW YORK.

Wood for Interior Joinery.—Ichabod T. Williams and Sons, Eleventh avenue and Twenty-fifth street, New York City, make a specialty of choice woods for interior joinery. This company constantly carries in stock a large quantity of wood adapted for all classes of vessels from ocean freighters to large battleships or finely furnished yachts. Among the special woods which the firm handles are teak, mahogany, lignum vitae, etc. The business was established in 1838.

"American" Steam Specialties.—Among the prominent firms of the country which received gold medals at the Pan-American Exposition is the American Steam Gauge and Valve Mfg. Co., Jamaica Plain, Mass. This company had a large and fine exhibit of its many steam specialties, including steam gauges, pop safety valves, Thompson indicators, engine and boiler fittings, etc. Since this company moved into its new plant the facilities for turning out its many specialties have been very greatly increased, and correspondence is now solicited from any who seek goods of this kind.

Free Reference Library for Mechanics.—An unusual opportunity for ambitious mechanics about to enroll in a correspondence school to get a handsome and valuable set of books absolutely free of charge is offered by the American School of Correspondence, Boston, Mass., the trustees having voted to apportion a limited number of sets of their special holiday edition of the "Reference Library of Engineering Practice" to given districts to be awarded to properly recommended students enrolling for full engineering courses during the month of December. This library consists of important instruction papers in the electrical, stationary, locomotive, marine and mechanical engineering courses. It is in five quarto volumes, handsomely bound in half morocco, and contains 2,842 pages, and 1,975 illustrations, consisting of original drawings, sketches, sections, details, etc., illustrating every detail of the subjects treated—in thoroughly indexed, and is a unique and extremely valuable addition to every progressive man's library. The library is printed solely for students of the American School, and, as the edition is limited, it would be well to apply at once, as applications can be considered only in the order received. A handsome large hand-book describing methods of instruction and the library in detail will be sent to any one upon application.

A Record Three Year Older.—This isn't bad for a three year older. The Voorhees Rubber Mfg. Co., 18-42 Bostwick avenue, Jersey City, N. J., started to make things hum in 1898. In 1900 increasing business demanded the addition of a four story building. And now a two story brick building has just been added to this buzzing hive of industry. The new building has been equipped with the latest models of machinery to supply the ever growing demand for the Voorhees Co.'s goods. Probably the largest hydraulic belt press ever in use has been added to this equipment. The new press will be able to turn out belts of the largest sizes, and in short time. Looking back over a period of 36 short months, the growth of this company would seem impossible but for one thing. It makes goods that are unique in their excellence. One of the most important features of this company's manufacture is "Nubian" packing. Its ability to withstand higher temperature than most other packings on the market is guaranteed, and makes "Nubian" very economical. It retains its strength and pliability under conditions that would destroy many packings, and is suitable for water, steam, oil or ammonia. By its adaptability and durability it is at one time both one of the best and cheapest. It can be had in flat and tubular gaskets and rings, adapted for high or low pressure. The U. S. cruiser *Montgomery* has been equipped with "Nubian" throughout, a government endorsement of the claims made by the manufacturers of this product. In addition to this, the Voorhees Co. makes a complete line of belting, hose, valves, as well as everything else in mechanical rubber goods, all of the highest grade. Full particulars and prices on any line may be had on request.

Standard Seamless Tube Co.

MANUFACTURERS OF

Seamless Cold Drawn Steel Tubing

In all sizes from ⅛ to 16 inches diameter.

BOILER TUBES
FOR ALL CLASSES OF MARINE WORK

Stay Tubes. Water Grates. **Compressed Air and High Steam Pressures.**

Hollow Shafts, Bushings, Hydraulic Tubes, etc., etc.

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ENLARGED PENBERTHY FACILITIES.—The Penberthy Injector Co., Detroit, Mich., is just installing a large engine, this one of 200 horse power, in its main steam plant. This great increase in the company's power plant has been rendered necessary by the remarkable growth of business during the past year. The demand for Penberthy injectors, and the other specialties of this company, has been so great as to require a large amount of additional machinery. With the enlargement of the steam plant and many additional lathes and other tools, the Penberthy Company will have one of the largest and best equipped plants in the country for turning out such special lines of goods. The company is putting on the market a number of new specialties.

IT WILL NOT LAST FOREVER, but the Eagleine asbestos sheet packing manufactured by the Eagle Oil and Supply Co., 104 Broad street, Boston, Mass., has gained a reputation among engineers for lasting qualities of which the manufacturer is proud. One engineer writes: "The Eagleine asbestos sheet packing which you sold us about eighteen months ago has given the best of satisfaction. Unlike some other kinds, it does not soften up much when it gets hot, nor squeeze out of the joints. I made some 14-inch joints over a year ago, did not follow them up with a wrench when they got hot, and they are tight now. It is the best I have ever used. If you wish to refer any one to me, should be glad to recommend it." Addresses of users are sent upon request. Mention MARINE ENGINEERING and catalogues of the different Eagle specialties will be mailed free.

PAINT AND VARNISH REMOVER.—The Keystone Varnish Co., 71 Otsego street, Erie Basin, Brooklyn, N. Y., has met with much success in introducing the J. A. Swiss paint and varnish remover, which is now extensively used on yachts and vessels of all kinds. This remover was used on board *Shamrock II.*, and Capt. Sycamore wrote to the company that it successfully removed four coats of paint with only one application of the Remover, leaving a clean surface for refinishing. This paint and varnish remover is intended to remove paint and varnish of any age from any surface and will not raise the grain or injure in any particular the woodwork or the paint or varnish which may be applied afterwards; no matter how long a time it is left on. It is not in any way injurious to the health or hands and has no disagreeable odor. It is no more inflammable than any ordinary varnish. If the instructions are carefully followed out the claim is made that it will do its work satisfactorily in every particular.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

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Experienced mechanical engineer desires position with marine engine or yacht building company; familiar with steam, electricity and gasoline; now engaged as engineer and superintendent. Address
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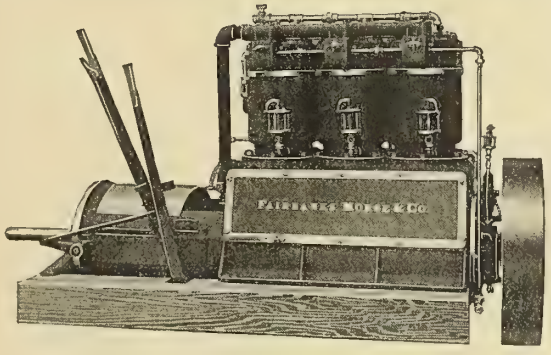

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Engine under perfect control of operator. Can be run slow or fast. Fitted with reversing gear and solid propeller. Late spark for starting. Send for catalogue.

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Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

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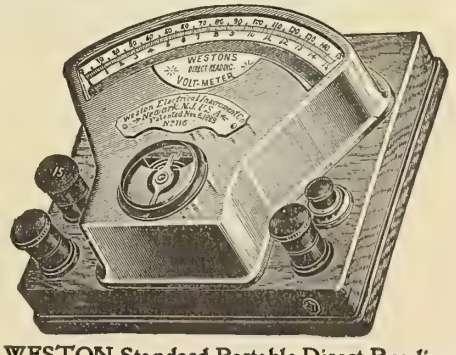

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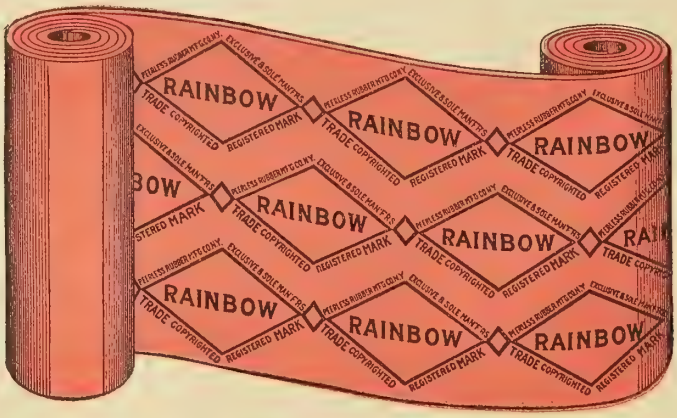
Rainbow Packing

Makes Steam, Flange and Hot Water Joints Instantly

Thousands of Imitators.

No Equal.

Will Hold Highest Pressure.



Don't have to Use Wire and Cloth to Hold

RAINBOW

Can't Blow it Out.

THE COLOR OF RAINBOW PACKING IS RED

See that the Trade Mark (three rows of diamonds in black, connected) extends throughout the entire length of each yard or roll

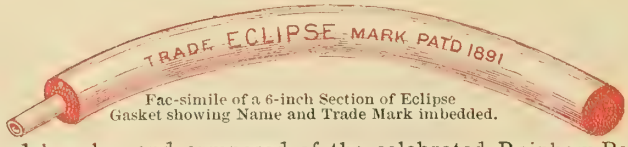
WILL CARRY IN STOCK

It is an undisputed fact that Rainbow Packing is the only Sheet or Flange Packing in the world that will carry in stock for months and years without hardening or cracking

The Eclipse Sectional Rainbow Gasket

3/8 in.
1/2 in.
5/8 in.
} **For Hand Holes.**

3/4 in.
7/8 in.
1 in.
} **For Extra Large Joints.**



Fac-simile of a 6-inch Section of Eclipse Gasket showing Name and Trade Mark imbedded.

The Eclipse Gasket is red in color, and composed of the celebrated Rainbow Packing Compound. It will not harden under any degree of heat, or blow out under the highest pressure, and can be taken out and repeatedly replaced. Joints can be made in from three to five minutes.

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